SONY

Operation Software

HZS-7040

User's Guide

HD Digital Video Switcher

HDS-7150

Volume 1
1st Edition English
Software Version 1.00 and Later

Digital HDVS

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Chapter 1
Overview

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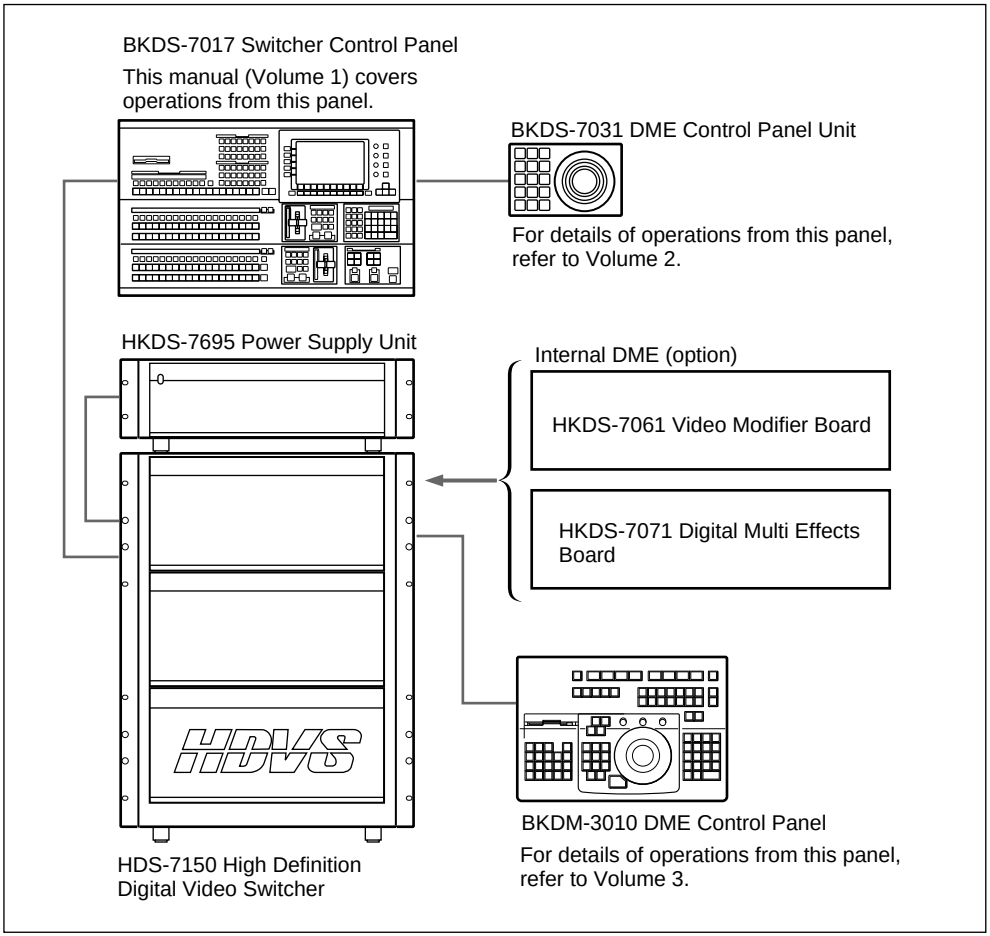
HDS-7150 System Introduction

This manual is Volume 1 of the User's Guide for the HZS-7040 Operation Software for the HDS-7150 High Definition Digital Video Switcher. The User's Guide consists of three volumes, and this volume covers control of the HDS-7150 from the BKDS-7017 Switcher Control Panel.

System Configuration

The following figure shows an example configuration of an HDS-7150 system.


BKDS-7017 Switcher Control Panel
This manual (Volume 1) covers operations from this panel.
BKDS-7031 DME Control Panel Unit
For details of operations from this panel, refer to Volume 2.
HKDS-7695 Power Supply Unit
Internal DME (option)
HKDS-7061 Video Modifier Board
HKDS-7071 Digital Multi Effects Board
BKDM-3010 DME Control Panel
For details of operations from this panel, refer to Volume 3.
HDS-7150 High Definition Digital Video Switcher

Terms used in this manual

In this manual the following terms (other than product names) are used to refer to this software product and related devices.

Term used in this manual	Corresponding device and function
“Switcher”	HDS-7150 High Definition Digital Video Switcher
“Switcher control panel” or “Control panel”	BKDS-7017 Switcher Control Panel
“Internal DME” or “DME”	DME functions provided by installing the optional HKDS-7061 and HKDS-7071 in the switcher
“External DME”	HDME-7000 High Definition Digital Multi Effects connected to the switcher
“DME control panel”	BKDS-7031 DME Control Panel Unit (The other DME control panel which can be connected to the switcher is always referred to by its model name, the BKDM-3010.)

Operation Software

The HZS-7040 Operation Software provides for control of an HDS-7150 High Definition Digital Video Switcher and internal DME function.

Disks and manuals included in the HZS-7040

The following disks and User’s Guide volumes are included in the product.

Label	Contents
SYSTEM DISK 1	Switcher processor software (including software for the HKDS-7061)
SYSTEM DISK 2	Switcher control panel software
SYSTEM DISK 3	Internal DME software (for the HKDS-7071)
SYSTEM DISK 4	Software for the BKDM-3010 DME Control Panel
User’s Guide Volume 1 (this manual)	Description of switcher operating procedures
User’s Guide Volume 2	Description of operating procedures for the internal DME controlled from the BKDS-7031 DME Control Panel Unit
User's Guide Volume 3	Description of operating procedures for the internal DME controlled from the BKDM-3010 DME Control Panel

Installing software, and User's Guide volumes used

Use the disks and User's Guide volumes included in the HZS-7040 according to the following table of objectives.

Objective	Control panel	Disks used	Software installation destination	User's Guide volume for reference
Operating the switcher	BKDS-7017	DISK 1 and DISK 2	BKDS-7017 Switcher Control Panel	Volume 1
Operating the internal DME	BKDS-7031	DISK 3	BKDS-7017 Switcher Control Panel	Volume 2
	BKDM-3010	DISK 3 and DISK 4	BKDM-3010 DME Control Panel	Volume 3

For details of the method of installing DISK 1 and DISK 2 in the BKDS-7017, see page 13-7 in this manual.
For other installation procedures refer to the corresponding manual.

Notes

- With the HDS-7150, you can use either an internal DME (HKDS-7061 and HKDS-7071) or an external DME (HDME-7000 or similar connected to the EXT DME 1/2 connectors). However, it is not possible to use both together.
  To use an internal DME, in the SYSTEM CONFIGURATION menus (*see page 13-12*), set DME CONFIG to "INT."
  For the operations when an external DME is selected ("EXT"), refer to the HZDM-7020 User's Guide.
- The photographs and figures of screen examples in this User's Guide illustrate the case where the aspect ratio is set to the 4:3 mode. When the 16:9 mode is selected, the screen aspect ratio is 16:9.

Related manuals

The following manuals are supplied with the HDS-7150 High Definition Digital Video Switcher:

- HDS-7150 Operation Manual
- HDS-7150 Installation Manual
- HDS-7150 Maintenance Manual Part 1

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Features

The HDS-7150 is a high-performance switcher of high functionality, that supports HDVS (High Definition Video System). The following are some of the features of this switcher system.

Full-featured video effects

M/E and PGM/PST banks

There are one M/E (Mix/Effects) bank and one PGM/PST (Program/Preset) bank for the HDS-7150 switcher system. The M/E bank includes two keyers which can be operated independently and simultaneously.
The output from the M/E bank can be input as a background signal to the PGM/PST bank, for further keying and other operations.
The PGM/PST bank has a downstream keyer.

DME wipes (operation coupled to a DME) (option)

By installing the optional HKDS-7071 Digital Multi Effects Board and HKDS-7061 Video Modifier Board (internal DME) in the switcher, you can use the control panel to carry out DME wipes, using DME effects (the "DME LINK™" function).
DME wipes are also available by connecting an external DME unit, such as the HDME-7000 High Definition Digital Multi Effects to the switcher.

System configuration flexibility

Wide range of options

There is a wide range of options, allowing just the features required to be installed in a system.

Convenient interfaces with external equipment

Using the HDS-7150 along with the Sony HD Routing Switcher, you can make up a large-scale switcher system. Connecting the BVE-9100 Editing Control Unit to your system will allow you to carry out such advanced editing operations as interactive status reporting (ISR) and EDL (Edit Decision List) management.

Powerful remote control functions

You can connect the BKDS-2010 Control Panel to the HDS-7150 and use it as a separate panel exclusively for the M/E and PGM/PST banks. For key adjustment operations such as chroma key adjustment, the BKDS-7060 Keyer Remote Control Panel is available. You can use the dedicated panel connected to the HDS-7150 to remote-control the auxiliary bus and SHOT BOX operations.

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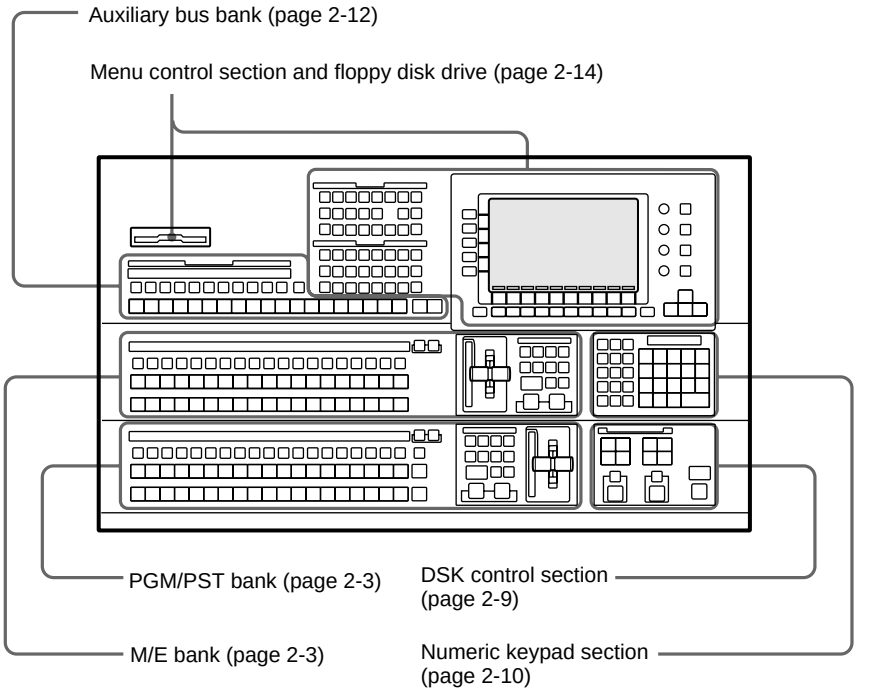
Overall Organization

The control panel is divided into several blocks of buttons and other controls, as shown below. See the page numbers indicated in parenthesis for more details. For details of the following optional units that may be connected to the control panel, also see the page numbers indicated in parenthesis.

- BKDS-7030 Keyframe Control Panel Unit *(page 2-16)*
- BKDS-7031 DME Control Panel Unit *(page 2-19)*
- BKDS-7033 Memory Recall Control Panel Unit *(page 2-22)*

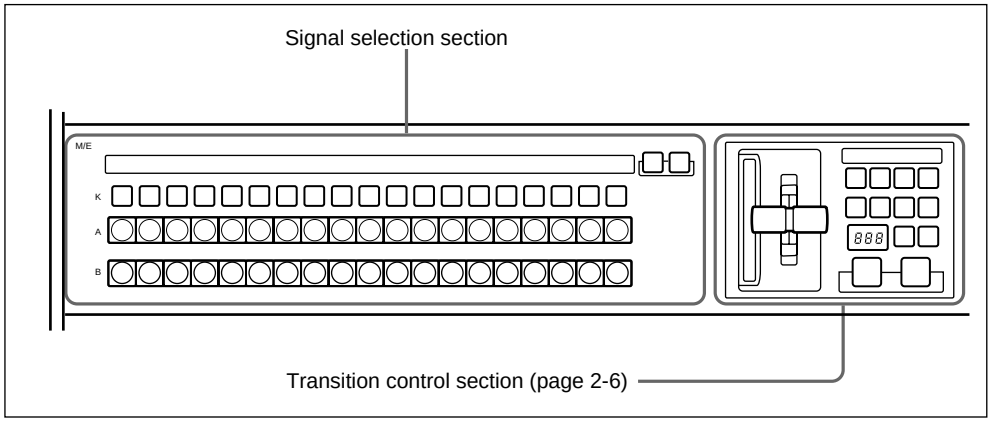

Auxiliary bus bank (page 2-12)
Menu control section and floppy disk drive (page 2-14)
PGM/PST bank (page 2-3)
M/E bank (page 2-3)
DSK control section (page 2-9)
Numeric keypad section (page 2-10)

BKDS-7017 control panel

Mix/Effects Bank and Program/Preset Bank

The mix/effects (M/E) bank and the program/preset (PGM/PST) bank carry out video making separately.

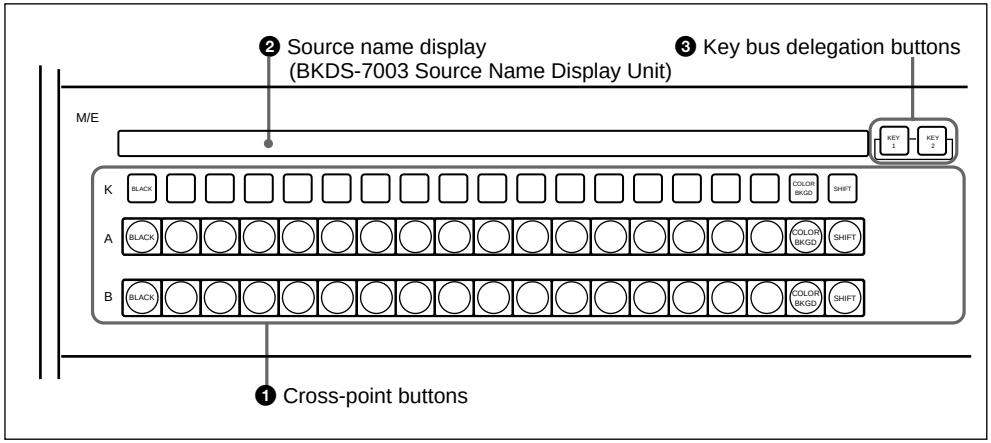
These two banks are functionally and structurally similar; the following illustration shows the M/E bank by way of example.



M/E bank

Signal Selection Section

This is used for selecting signals on this bank.



Signal selection section

❶ Cross-point buttons
These buttons select the signals used for video making on this bank.
Each row of buttons corresponds to one or more signal buses within the switcher.

Using a setup menu, you can assign any signals to the first 19 cross-point buttons in each row. The rightmost button of each row of the program/preset bank is a reentry button for selecting the output signals from the mix/effects bank.

The buttons to which you can assign signals are numbered 0 to 18 from left to right. By means of a setup operation, you can assign the rightmost button (number 18) as a shift button. In this case buttons 0 to 17 can be used to select a second set of signals, numbered 20 to 37, in the shifted state. To select these shifted signals, hold down the SHIFT button then press the required cross-point button.

It is also possible, using a setup menu operation, to switch the shift button to be the leftmost button instead of the rightmost. In this case the assignable signals are numbered 1 to 18 and 21 to 38.

The setup menu operation assigns signals to cross-point button columns, so that naturally buttons select the same signals regardless of which bank or row they are in.

K (key bus) row: These buttons select the key signals to be inserted into the video on this bank.
The K row controls both the key 1 and key 2 fill buses. To delegate these buttons to the key 1 fill bus, press the key bus delegation button ❸ KEY 1, turning it on, and to delegate these buttons to the key 2 fill bus, press the key bus delegation button KEY 2, turning it on.
The K row on the M/E bank corresponds to the DSK row on the PGM/PST bank. On the PGM/PST bank, the DSK row controls the DSK1 fill bus that can be selected using the key bus delegation button DSK1.

A row (background bus A): These buttons select the signal for background A. Except while executing a background transition, this bus provides the output of this bank.
This row corresponds to the PGM row on the PGM/PST bank.

B row (background bus B): This bus provides the second background for a transition, which replaces the background currently on bus A.
This row corresponds to the PST row on the PGM/PST bank.

Visual indications on cross-point buttons

The currently selected button in a row (i.e. the last button pressed) lights amber or red.

Amber ("low tally"): the signal selected on the bus does not form part of the program output from the switcher.

Red ("high tally"): the signal selected on the bus forms part of the program output from the switcher.

❷ Source name display (BKDS-7003 Source Name Display Unit)

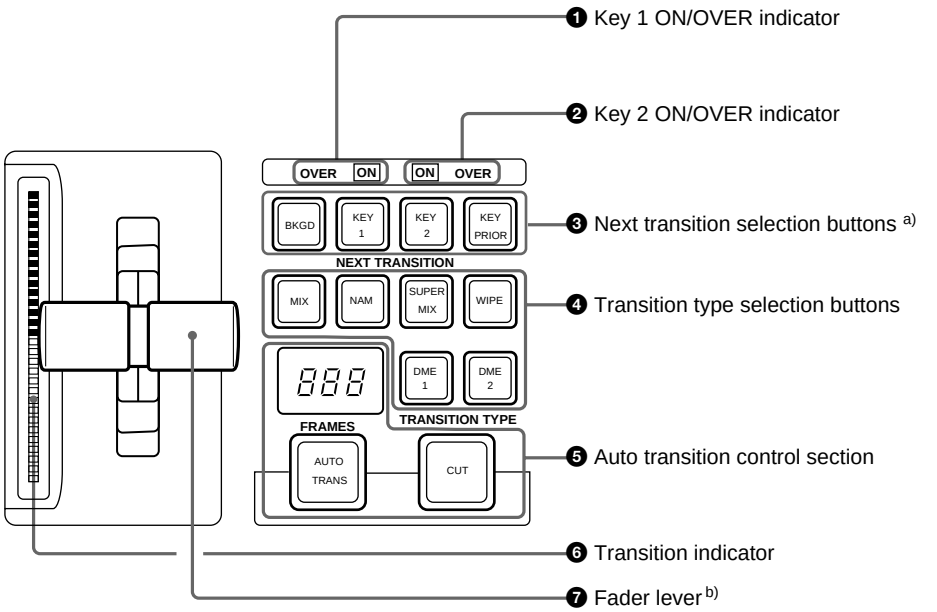
This shows the identifiers of source signals. When there are two signals assigned to a cross-point button column, hold down the shift button in the cross-point button row to show the identifiers assigned to the shifted buttons.
If you are using the switcher and an HDS series routing switcher connected by a BKDS-7700 Tally Interface Unit, the signal names selected on the routing switcher can be displayed.

❸ Key bus delegation buttons

Press KEY 1 or KEY 2, turning it on, to delegate the K row of cross-point buttons ❶ to the key 1 or key 2 fill bus.
On the PGM/PST bank, use the DSK 1 button to delegate the DSK row of cross-point buttons to the DSK 1 fill bus.

Transition Control Section

The buttons in this section control transitions on the output from this bank.



a) The KEY 1 button in the M/E bank corresponds to the DSK 1 button in the PGM/PST bank.
b) In the PGM/PST bank, the fader lever is on the right-hand side.

Transition control section (M/E bank)

❶ Key 1 ON/OVER indicator

ON: Lights when key 1 is inserted in the output from this bank.

OVER: Lights when key 1 is over key 2.

In the PGM/PST bank, this indicator is associated with DSK 1.

❷ Key 2 ON/OVER indicator

ON: Lights when key 2 is inserted in the output from this bank.

OVER: Lights when key 2 is over key 1.

In the PGM/PST bank, this indicator does not function.

❸ Next transition selection buttons

These buttons determine what the next transition will apply to.

BKGD: Next transition is a background transition.

KEY 1: Next transition will insert or remove key 1. If key 1 is currently inserted it will be removed, and vice versa.

This button corresponds to the DSK 1 button in the PGM/PST bank.

KEY 2: Next transition will insert or remove key 2. If key 2 is currently inserted it will be removed, and vice versa.

This button in the PGM/PST bank does not function.

KEY PRIOR (priority): Next transition will interchange the priority relationship between key 1 and key 2.

This button in the PGM/PST bank does not function.

More than one of these buttons can be lit simultaneously.

❹ Transition type selection buttons

Press one of these buttons, turning it on, to determine the type of the next transition.

MIX: In a background transition, the new background video fades in as the old video background fades out. The new background level is increased from 0% to 100% as the old background level is reduced from 100% to 0%, in such a way that the overall signal level is always 100%.

In a key transition, the key fades in (for insertion) or out (for removal).

NAM (non-additive mix): The old background and new background video signals are compared, and the higher one is used as the output.

The old video is reduced from 100% to 0% over the second half of the transition, and the new video level is increased from 0% to 100% over the first half, all the while combining the two signals by non-additive mixing.

SUPER MIX: The old video is reduced from 100% to 0% over the second half of the transition, and the new video level is increased from 0% to 100% over the first half, all the while combining the two signals by (ordinary) mixing.

It is also possible to set the video levels at the mid-point of the transition to any value between 0 and 100%, by using the BKGD/TRANS menu for the bank being used.

WIPE: The transition executed will be a wipe, using the settings in the wipe setting menu for the bank being used.

DME 1: The transition will be a wipe-like effect, using the effects provided by DME channel 1. This requires an HKDS-7071 Digital Multi Effects Board and an HKDS-7061 Video Modifier Board to be installed to the switcher.

To carry out a dual DME wipe using the effects provided by two DME channels, press this button and the DME 2 button simultaneously, turning them on.

This requires an HDME-7000 Digital Multi Effects or other external DME unit to be connected.

DME 2: The transition will be a wipe-like effect, using the effects provided by DME channel 2. This requires an HDME-7000 or other external DME unit to be connected to the switcher. To carry out a dual DME wipe using the effects provided by two DME channels, press this button and the DME 1 button simultaneously, turning them on.

❺ Auto transition control section

Duration display: This shows the number of frames in the transition duration. You can set the duration using the numeric keypad.

AUTO TRANS button: Pressing this button carries out an auto transition of the set duration. The transition starts immediately, and the button lights amber. When the transition completes, the button goes off. While a transition is in progress (i.e. while the button is lit amber), pressing the AUTO TRANS button again pauses the transition, and the AUTO TRANS button then lights green. Pressing the button again in this state resumes the transition, and the AUTO TRANS button reverts to amber.

CUT button: Pressing this button carries out the transition as a cut (i.e. instantaneously).

❻ Transition indicator

This comprises 30 LEDs which show the current status of the transition.

❼ Fader lever

This is used to carry out a manual transition.

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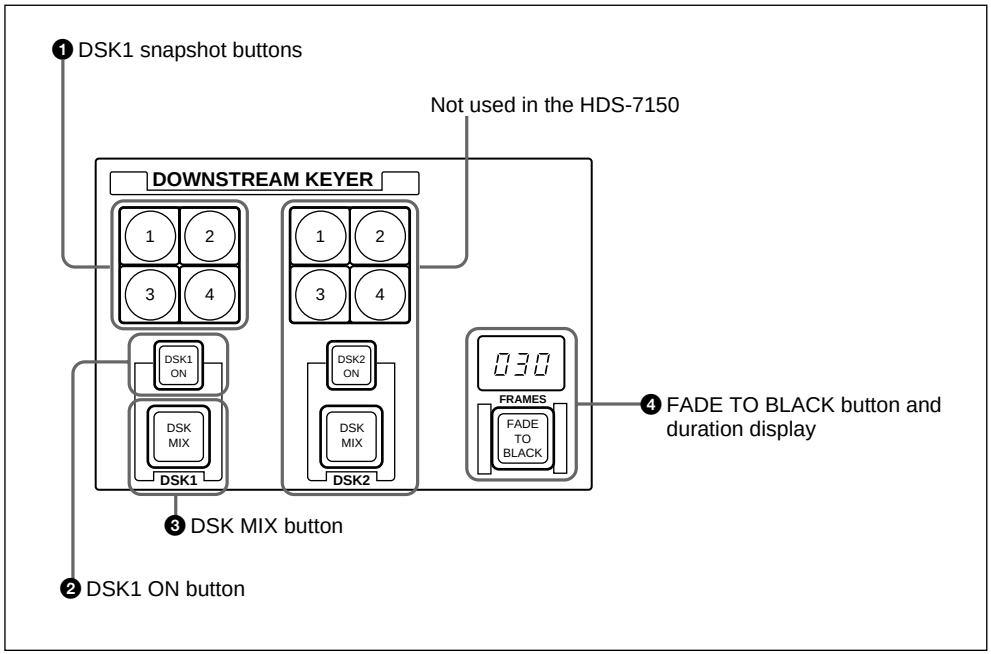
Downstream Keyer (DSK) Control Section



DSK control section

❶ DSK1 (downstream keyer 1) snapshot buttons
Use these buttons to recall DSK1 key snapshots.

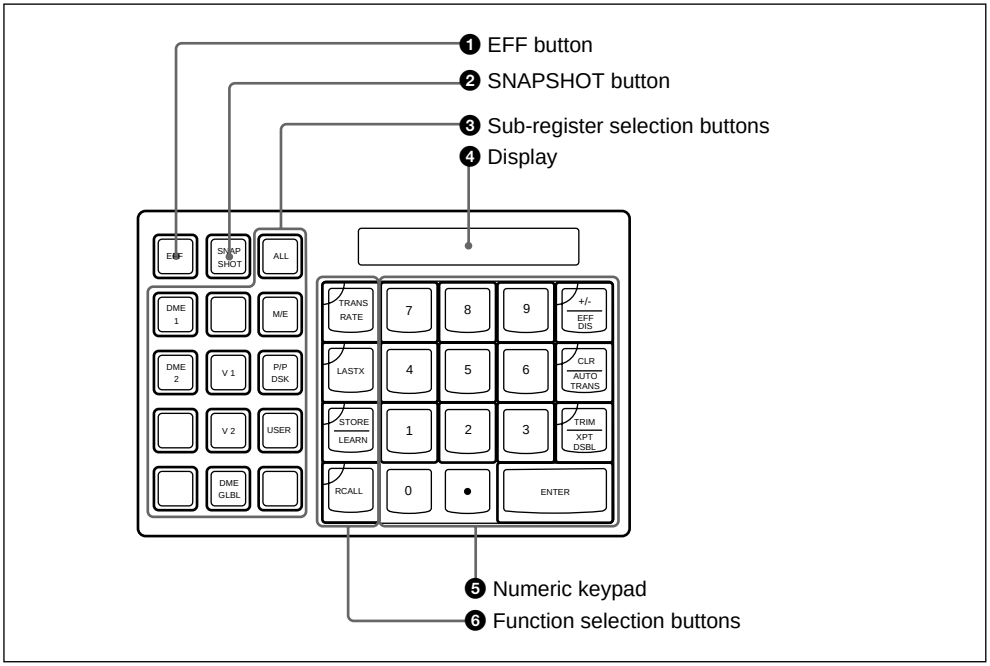
❷ DSK1 ON button
Use this button to cut downstream key 1 in or, when the downstream key is already inserted, cut it out.
When the downstream key is inserted, the button lights red: however, it lights amber if the switcher output is black with the FADE TO BLACK button ❹ lit.

❸ DSK MIX button
This button fades the downstream key in, or when the downstream key is already inserted, fade it out.
You can set the transition rate (the number of frames used during the duration of a transition) using the ALL STATUS menu for DSK1.

❹ FADE TO BLACK button and duration display
Press this button, turning it on, to fade the switcher program output to black. At the end of the transition, when the switcher program output is completely black, the button lights red.
You can set the transition rate using the ALL STATUS menu.

Numeric Keypad Section

The buttons in this section are used for various numerical settings such as transition durations, and for storing and recalling snapshots and other values.



Numeric keypad section

❶ EFF (effect) button

Press this button, turning it on, to save or recall a Keyframe effect.

❷ SNAPSHOT button

Press this button, turning it on, to save or recall a snapshot.

❸ Sub-register selection buttons

These buttons select the sub-registers to which data save and recall operations apply.

Sub-registers refer to subdivisions of a register, and more than one can be selected simultaneously.

Of the following buttons, the M/E and P/P DSK buttons are also used for selecting the bank to which a transition rate setting applies.

ALL: Pressing this button selects all of the following buttons.

It is possible to specify the buttons to be selected when this button is pressed.

For more details, see the section "Changing Switcher Functions (OPERATION MODE Menu)" (page 13-48).

M/E: This selects the sub-register corresponding to the M/E bank.

P/P DSK: This selects the subregister corresponding to the PGM/PST bank.

USER: This button selects the set of sub-registers corresponding to the auxiliary bus bank and the video processing function settings. For snapshot registers, however, you can select the USER button to control any subset of these sub-registers, using the REGISTER menu.

DME 1, DME 2 and DME GLBL (global): These buttons select the DME units connected to the switcher.

V1, V2: These buttons select the VTRs connected to the control panel.

❹ Display

This shows entered numerical values, and also the current function (for example LEARN) or parameter name.

❺ Numeric keypad

As well as numerical buttons, this also includes buttons for applying attributes to snapshots.

0 to 9: Input the corresponding digit.

" . ": Input a decimal point.

+/– /EFF DIS (effect dissolve): This button inverts the sign of the value being entered.
When the SNAPSHOT button ❷ is lit, this button has the effect of adding the "EFFECT DISSOLVE" attribute to the snapshot.

CLR/AUTO TRANS (clear/auto transition): This clears an entered value, and returns to the state before starting input.
When the SNAPSHOT button ❷ is lit, this button has the effect of adding the "AUTO TRANSITION" attribute to the snapshot.

TRIM/XPT DSBL (cross-point disable): Press this button instead of the ENTER button if you wish to trim the current setting, that is add the value entered from the numeric keypad to its current value.
When the SNAPSHOT button ❷ is lit, this button has the effect of adding the "XPT DISABLE" attribute to the snapshot.

ENTER: This confirms the value entered.

❻ Function selection buttons

Use these buttons for setting the transition duration, or for saving or recalling data in registers.

TRANS (transition) RATE: Sets the transition duration, thus determining the rate at which it is carried out.

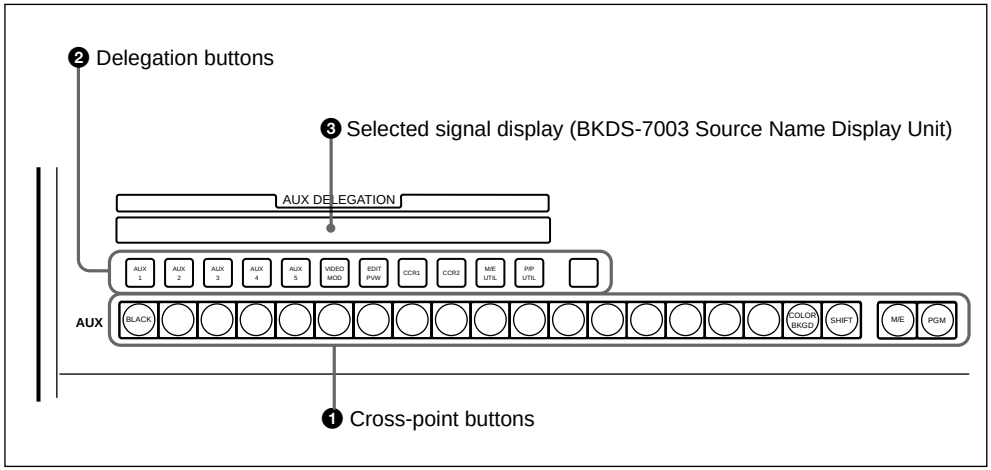
LAST X: Undoes a register recall operation.

STORE/LEARN button: Saves a keyframe effect or snapshot in a register.

RCALL (recall) button: Recalls the contents of a register.

Auxiliary Bus Bank

The auxiliary bus bank controls the selection of signals output from the unit, and of signals used for video masking.



Auxiliary bus bank

❶ Cross-point buttons

The leftmost 19 cross-point buttons in each row are allocated to the same signals as the cross-point buttons in the M/E and PGM/PST banks. At the right, there are also two reentry buttons (M/E and PGM) to select the output from either of the two banks.

Like in the M/E and PGM/PST banks, the buttons to which you can assign signals are numbered 0 to 18 from left to right. By means of a setup operation, you can assign the rightmost button (number 18) as a shift button. In this case, buttons 0 to 17 can be used to select a second set of signals, numbered 20 to 37, in the shifted state. To select these shifted signals, hold down the SHIFT button, then press the required cross-point button.

It is also possible, using a setup menu operation, to switch the shift button to be the leftmost button instead of the rightmost. In this case, the assignable signals are numbered 1 to 18 and 21 to 38.

The cross-point buttons serve a total of 11 buses, including AUX 1 to AUX 5 and the edit preview bus. Before selecting the signal, delegate the cross-point buttons with the appropriate delegation button ❷.

❷ Delegation buttons

Press one of these buttons, turning it on, to delegate the cross-point buttons to the corresponding bus.

AUX 1 to AUX 5 buttons: These correspond to auxiliary buses 1 to 5. The signals on these buses are output from the connectors on the rear panel labeled AUX BUS OUTPUTS 1 to 5. The VIDEO, KEY, and EXT VIDEO inputs to the optional HKDS-7071 Digital Multi Effects Board can be selected using the AUX 1, AUX 2 and AUX 3 buses.

VIDEO MOD (modify): To select the video or key input to the optional HKDS-7061 Video Modifier Board. To select the key input, press the desired cross-point button while holding this button down.

CCR1 and CCR2 (color corrector 1 and 2) buttons: To select the inputs to the optional HKDS-7051 Color Correction Board. These correspond to CH1 and CH2 buses of the color corrector.

EDIT PVW (preview) button: This corresponds to the edit preview bus. The signal on this bus is output from the connector on the rear panel labeled EDIT PVW OUTPUT.

M/E UTIL button: This corresponds to the utility bus on the M/E bank.

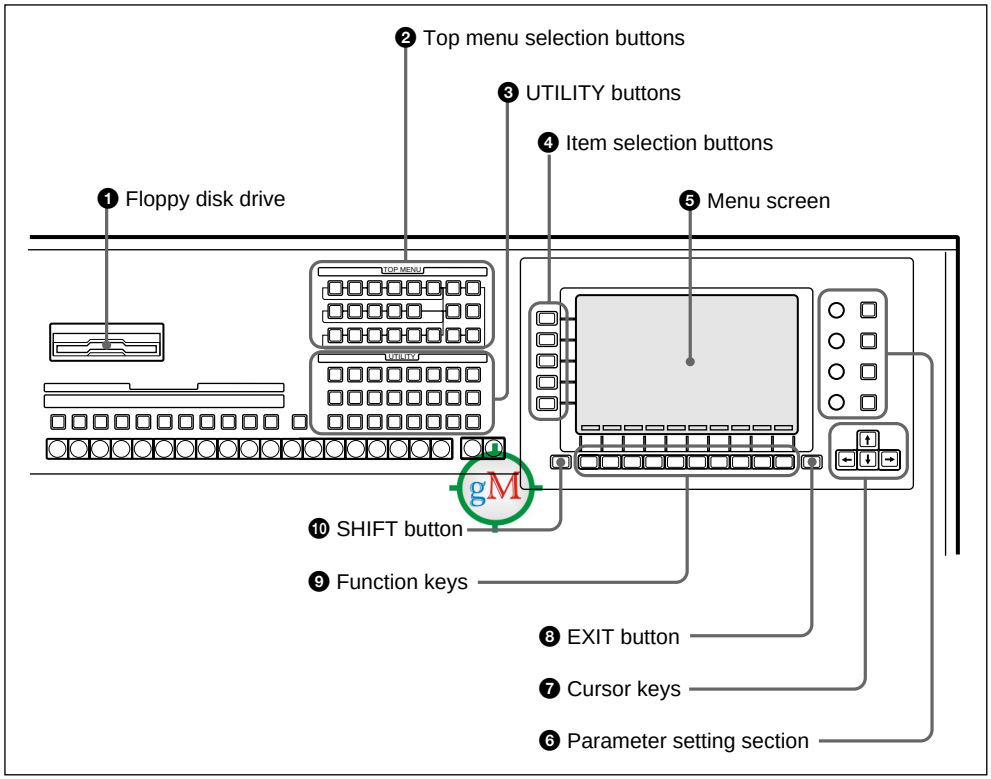
P/P UTIL button: This corresponds to the utility bus on the PGM/PST bank.

❸ Selected signal display (BKDS-7003 Source Name Display Unit)

This displays the identifier of the source signal currently selected on each bus.

Menu Control Section and Floppy Disk Drive

The menu control section provides a variety of functions through the menu screen.



Menu control section and floppy disk drive

❶ Floppy disk drive

This takes a 3.5-inch floppy disk. You use it for installing the operation software, and for saving snapshot, keyframe, setup and other data on a floppy disk.
The disk drive is controlled by menu operations.

❷ Top menu selection buttons

Each of these buttons accesses a top menu.

For details of the menu names and functions associated with these buttons, see page 3-3.

❸ UTILITY buttons
Use these 24 buttons to carry out the function preassigned to them in a setup operation.

For more detailed information, see page 13-61.

❹ Item selection buttons
These five buttons select the items within a menu. Pressing a button highlights the item display in reverse video, and changes the function key indications accordingly.

❺ Menu screen
This displays the menu currently in use.

For detailed menu operation, see Chapter 3.

❻ Parameter setting section
The controls in this section correspond to the values of parameters represented by bar indications at the right side of the menu screen.

Knobs: Turning a knob adjusts the value directly. In this manual these are referred to as knobs 1 through 4 from the top down.

KEY PAD buttons: Pressing one of these buttons allows you to enter the corresponding parameter value from the numeric keypad.

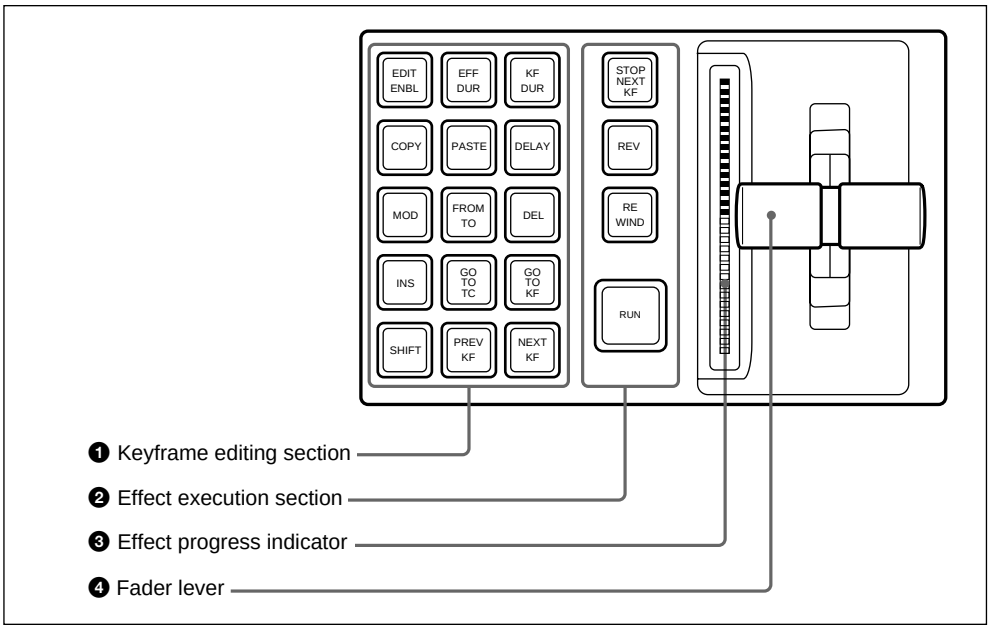
❼ Cursor keys
Press these to change the group of parameters being adjusted, and also to move the cursor about the menu screen.

❽ EXIT button
Press this button to exit from the currently displayed menu to its parent menu, or the previously displayed menu. When a pop-up appears in the menu screen, this button also clears the pop-up.

❾ Function keys
Function keys F1 to F10 carry out the on/off or selection operations shown by the function key indications along the lower edge of the menu screen.
If there are two indications for a single function key, hold down the SHIFT button and press the function key to obtain the effect of the upper indication.

❿ SHIFT button
Use this in conjunction with the function keys F1 to F10 ❾ or item selection buttons 1 to 5 ❹.

BKDS-7030 Keyframe Control Panel Unit (Option)



BKDS-7030 Keyframe Control Panel Unit

❶ Keyframe editing section

EDIT ENBL (enable) button: Pressing this button, turning it on, enables the creation and editing of keyframes (edit mode). Regardless of the setting of this button, however, while an effect is being executed it is not possible to create or edit effects.

EFF DUR (effect duration) button: Press this button to set the effect duration (the overall length of the effect) using the numeric keypad.

KF DUR (keyframe duration) button: Press this button to set the keyframe duration (the time from the current keyframe to the next keyframe) using the numeric keypad.

COPY button: This copies the current keyframe into the paste buffer. It can then be inserted using the PASTE button.

If a range is specified with the FROM TO button, all keyframes in this range are copied together into the paste buffer.

PASTE button: Pressing this button inserts the keyframe from the paste buffer into the current position where the effect is stopped.
If the effect is stopped at a keyframe, the insertion point is determined as follows.
- When this button only is pressed, the insertion is immediately after the current keyframe.
- When this button is pressed with the SHIFT button held down, the insertion is immediately before the current keyframe.

DELAY button: Press this button to set the delay from the position of the first keyframe to the start of the effect using the numeric keypad.

MOD (modify) button: Writes the current working keyframe buffer to the current keyframe. When the effect is stopped between frames, the immediately previous keyframe is rewritten.
If a range is specified with the FROM TO button, all keyframes in this range are rewritten together.

FROM TO button: To copy, delete or modify a number of keyframes together, first press this button, and input the keyframe numbers to specify a range.

DEL (delete) button: This deletes the current keyframe. When the effect is stopped between frames, the immediately previous keyframe is deleted. If a range is specified with the FROM TO button, all keyframes in this range are deleted.

INS (insert) button: While the effect is stopped, this inserts a new keyframe. If the effect is stopped at a keyframe, the insertion point is determined as follows.
- When this button only is pressed, the insertion is immediately after the current keyframe.
- When this button is pressed with the SHIFT button held down, the insertion is immediately before the current keyframe.

GO TO TC (time code) button: Press this button, then enter a time code value from the numeric keypad, to go to that time code position.

GO TO KF (keyframe) button: Press this button, then enter a keyframe number from the numeric keypad, to go to that keyframe.

SHIFT button: Holding down this button changes the effect of the INS and PASTE buttons.

PREV KF (previous keyframe) button: Moves back to the last keyframe before the current position.

NEXT KF (keyframe) button: Moves forward to the next keyframe after the current position.

❷ Effect execution section

STOP NEXT KF (keyframe) button: When this button is lit, the effect is executed up to the next keyframe.

REV (reverse) button: When this button is lit, the effect is executed in the reverse direction.

REWIND button: This rewinds to the first keyframe of the currently recalled effect. If the REV button is on, however, this moves to the last keyframe.

RUN button: Executes the effect from the first keyframe to the last keyframe. If, however, a pause time point is set at some point during the effect, the execution stops when it reaches this point.
Pressing this button while the effect is being executed stops execution, and pressing it again resumes execution.

❸ Effect progress indicator

The lit portion of the indicator shows the state of progress of the effect.

❹ Fader lever

Use this for manual execution of an effect.

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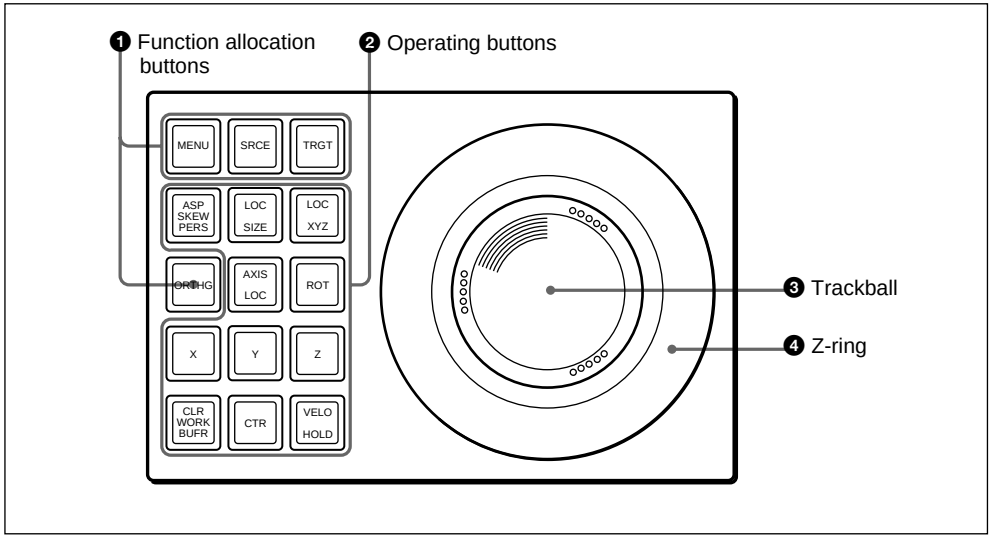
BKDS-7031 DME Control Panel Unit (Option)



BKDS-7031 DME Control Panel Unit

In addition to DME operations, the optional DME control panel unit can be used for wipe pattern positioner operations on the switcher and VTR tape transport control.

❶ Function allocation buttons

Allocate the overall functions of the DME control panel as follows.

SRCE (source): Allocate to operations in the DME source coordinate system.

TRGT (target): Allocate to operations in the DME target coordinate system.

For details of the effect of controls ❷ to ❹ when the SRCE or TRGT button is pressed and lit, refer to the HZS-7040 User's Guide Volume 2.

MENU: Allocate to knob operations in the menu control section. This button also lights when allocated to the wipe pattern positioner.

ORTHG (orthogonal or VTR control): Allocate to VTR tape transport control.

To use the ORTHG button for tape transport control, in the setup menus a setting is necessary for using this button as a VTR button. For details, see the section "Changing Switcher Functions (OPERATION MODE Menu)" (page 13-48).

When the setting to use this button as a VTR button is not made, this button functions as one of the operating buttons ❷.

For details of the effect of controls ❷ to ❹ when the MENU or ORTHG button is pressed and lit, see below.

Effect of controls ❷ to ❹ when the MENU button is lit

❷ Operating buttons

ASP SKEW PERS (M/E): Functions as an M/E button, allocated to M/E operations on the DME control panel.

LOC SIZE: Not used.

LOC XYZ (PGM/PST): Functions as a PGM/PST button, allocated to PGM/PST operations on the DME control panel.

AXIS LOC (REV): When the LOC XYZ (M/E) button or AXIS LOC (PGM/PST) button is lit, functions as a REV (reverse) button for the bank wipe operations. When this is "ON", wipe transitions occur in the reverse direction. When it is "OFF", wipe transitions occur in the forward ("normal") direction.

ROT (POS): When the LOC XYZ (M/E) button or AXIS LOC (PGM/PST) button is lit, toggles on or off the wipe positioner function for the main pattern.

X, Y, Z: The X and Y buttons enable movement of the trackball in the x- and y-directions. The Z button enables operation of the Z-ring. If all three buttons are off, the X, Y, and Z directions are all enabled; that is, this is the same as when all three buttons are lit.

CLR WORK BUFR: Not used.

CTR (center): When the LOC XYZ (M/E) button or AXIS LOC (PGM/PST) button is lit, returns the respective wipe pattern to the default position.

VELO HOLD (velocity hold): If you hold down this button while manipulating the trackball or Z-ring, then when you release the trackball or Z-ring the function continues at the same velocity as long as the button is held down.

ORTHG (when not used as a function allocation button ❶): When this button is lit, moving the trackball produces an orthogonal effect, moving only in whichever of the x- and y-directions has the larger component.

❸ Trackball

Horizontal movement (X) is allocated to the control of knob 1, and vertical movement (Y) to the control of knob 2. When the LOC XYZ (M/E) button or AXIS LOC (PGM/PST) button is lit, functions as the corresponding wipe positioner.

❹ Z-ring

Allocated to the control of knob 3. When the auto chroma key sample mark adjustment menu is displayed, this is used to adjust the size of the sample mark.

To keep the knob controls allocated to the trackball and Z-ring

With the knob controls allocated to the trackball and Z-ring, press the MENU button twice in rapid succession. The MENU button lights green, and even if you change to another menu, the allocation of the trackball and Z-ring remains unchanged.
To end this allocation, press the SRCE, TRGT, or ORTHG (VTR) button.

Effect of controls ❷ to ❹ when the ORTHG (VTR) button is lit

❷ Operating buttons

ASP SKEW PERS (MARK IN): Saves the current timecode as the start point.
LOC SIZE: Not used.
LOC XYZ (MARK OUT): Saves the current timecode as the stop point.
AXIS LOC: Not used.
ROT: Not used.
X (REW): Rewinds the tape.
Y (PLAY): Plays back the tape.
Z (FF): Fast forwards the tape.
CLR WORK BUFR (STB OFF): Switches to "standby off" mode.
CTR (STOP): Stops the tape.
VELO HOLD (JOG): Moves the tape at a speed dependent on the rate of rotation of the search dial (jog mode).

❸ Trackball

Not used.

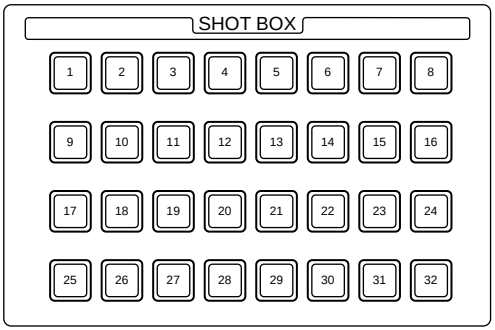
❹ Z-ring

In jog mode, acts as a search dial.

BKDS-7033 Memory Recall Control Panel Unit (Option)

You can assign switcher or DME registers storing such data as snapshots and keyframe effects to the 32 buttons of the SHOT BOX. Pressing one of the 32 buttons then recalls the snapshot or keyframe effect stored in the register assigned to the button.

For more information about the shot box function, see the section "Assigning Registers to the SHOT BOX Buttons (SHOTBOX Menu)" (page 13-63).



SHOT BOX buttons

Chapter 3
Basic Menu Operations

Menu Organization..... 3-2
Basic Menu Operations..... 3-5

Menu Organization

Operations of the HDS-7150 make frequent use of menu operations. This section describes the menus and their interrelationships.

Overview

All detailed settings for basic operations such as transitions, keys, or wipes, are made in menus. There are also menus for carrying out general system control, managing setting data, and initial setup.

Accessing menus

There are two ways to access a menu, and the initially selected items (1 to 5) depend on the method used.

- Pressing a top menu selection button in the menu control section
  This always returns to the selection when you last accessed this particular menu.
  After initially powering on the switcher, however, item 1 is always selected.
- Pressing a button other than a top menu selection button twice in rapid succession.
  Depending on the menu, this may select a fixed item or the item selected last time you accessed the menu.

For details of the menu items, see page 3-6.

Menus and their functions

Menus accessed from a top menu selection button

The menus which can be accessed from a top menu button are listed in the following table, together with their functions.

Menus accessed from a top menu selection button

Group	Button	Menus	Function	See page
M/E	KEY1, KEY2	M/E KEY1, M/E KEY2	Key 1 and key 2 settings for the M/E bank	4-36
	WIPE	M/E WIPE	Wipe settings for the M/E bank	4-54
	DME	M/E DME WIPE	DME wipe settings for the M/E bank	4-71
	CHR KEY	M/E CHROMA KEY	Chroma key settings for the M/E bank	5-3
	BKGD/ TRANS	M/E BKGD/TRANS	Color background, transition limit and other settings for the M/E bank	4-15, 4-79
PGM/ PST	DSK1	DSK1	Settings for the downstream key	4-36
	WIPE	P/P WIPE	Wipe settings for the PGM/PST bank	4-54
	DME	P/P DME WIPE	DME wipe settings for the PGM/PST bank	4-71
	BKGD/ TRANS	P/P BKGD/TRANS	Color background, transition limit and other settings for the PGM/PST bank	4-15, 4-79
SYSTEM	MISC	MISC	Miscellaneous operations including control by external equipment, safe title display, and the video process function	11-2
	COPY	COPY	Copy and swap operations	10-4
	ROUTR	ROUTER CONTROL	Routing switcher operations	12-6
	STATS	ALL STATUS	Displaying the status of each bank	4-82
	KEY FRAME	KEY FRAME	Key frame operation and editing	7-30
	REGS	REGISTER	Managing registers holding snapshots and other data	8-6
	DISK	DISK	Floppy disk operations	9-5
	SETUP	SETUP	Setup functions	13-4
	DIAG	DIAGNOSIS	Displaying error messages	14-3
UTILITY	The buttons in this group access the menus assigned to them using a setup menu.			13-61

Menus accessed by pressing a button twice

For certain buttons other than the top menu selection buttons, pressing twice in rapid succession directly recalls a related menu. The following table lists these buttons, together with the menus they recall.

Items listed in parenthesis after the menu names are automatically selected when the menu is recalled. If no item is shown, the item you last selected in this menu is automatically selected.

Menus accessed by pressing a button twice

Button location	Buttons	Menus	See page
Transition control section of M/E or PGM/PST bank	KEY1, KEY2 DSK1	M/E KEY1, M/E KEY2, DSK1	4-36
	WIPE	M/E WIPE or PGM/PST WIPE	4-54
	DME1, DME2	M/E DME WIPE or P/P DME WIPE	4-71
	SUPER MIX	M/E BKGD/TRANS or P/P BKGD/TRANS (item 2: LIMIT/S-MIX)	4-15
Cross-point button in M/E, PGM/PST or AUX BUS bank to which the signal indicated in "Buttons" column is assigned	Color background signal (M/E and PGM/PST banks)	M/E BKGD/TRANS or P/P BKGD/TRANS (item 1: COLOR BKGD)	4-79
Numeric keypad section	EFF	REGISTER (item 1: EFFECT)	8-7
	SNAPSHOT	REGISTER (item 2: SNAPSHOT)	8-7
	TRANS RATE	STATUS (item 5: ALL)	4-83
Signal selection section of M/E bank	KEY1, KEY2	M/E KEY1, M/E KEY2	4-36
Signal selection section of PGM/ PST bank	DSK1	DSK1	4-36
AUX BUS bank	AUX1 to AUX5 EDIT PVW	STATUS (item 5: ALL)	4-84

Basic Menu Operations

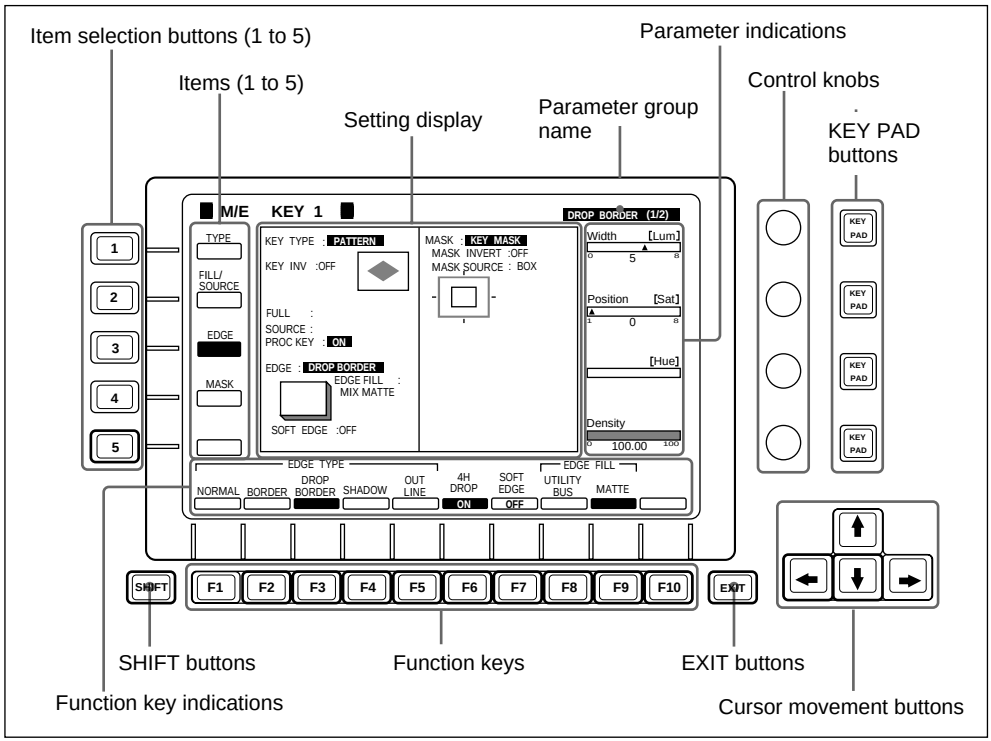
This section describes the basic menu operations, taking the M/E KEY 1 menu as an example.

Accessing the menu

To access the M/E KEY 1 menu, use either of the following operations.

- In the M/E group of the top menu buttons, press the KEY 1 button.
- In the transition control section of the M/E bank, press the next transition selection button KEY 1 twice in rapid succession.
- In the key control section of the M/E bank, press the keyer selection button KEY 1 twice in rapid succession.

The M/E KEY 1 menu appears as shown in the following figure.



Menu display and menu control section

Understanding the menu display

The following are the principal components of the menu display.
In the menu display, reverse video indicates that an item or function is currently selected (or set to “on”).

Items: These are the items to which the menu settings apply. Depending on the item selected, the menu display and function key indications change. In the example shown, item 3 “EDGE” is selected, and settings and function key indications relating to edge settings appear. In this manual, the menu display when a particular item is selected is sometimes referred by the name of the item: for example, the EDGE menu.

Setting display: This shows current settings. In the example shown, “DROP BORDER” is selected as the edge type.

Parameter group name: The set of parameters associated with the function for a particular function key is termed a “parameter group”.
In the example shown, the “DROP BORDER” parameter group is selected. Note that where there are five or more parameters in the same group, either “(1/2)” or “(2/2)” is appended to the group name.

Parameter indications: These show the current values of the parameters adjusted with the four control knobs.
In the example shown, the values for three of the “DROP BORDER” parameters appear. In total the “DROP BORDER” group has seven parameters, and the names of those not currently displayed appear in brackets (e.g. “[Lum]”. for luminance).

Function key indications: These indicate the operations carried out by the respected function keys.

Selecting an item

Press the corresponding one of the item selection buttons (numbered 1 to 5). The function key indications change, and you can now make the relevant settings.

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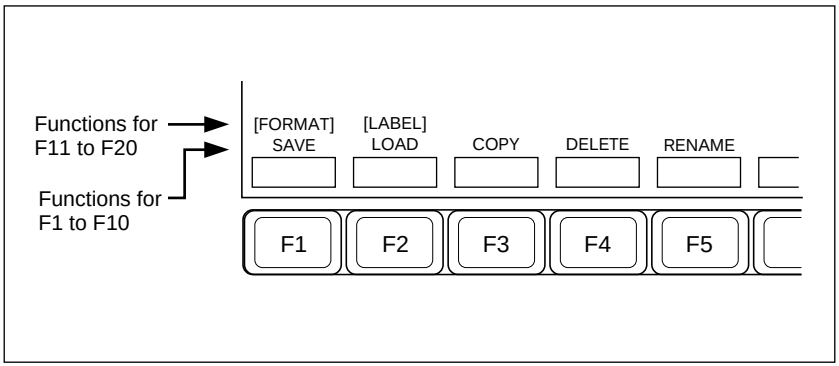
Selecting a function

Press the corresponding function key.
In this manual, for example in the M/E KEY 1 menu shown on page 3-5 pressing F3 to select the “DROP BORDER” function is indicated simply by “Press F3 (DROP BORDER)”.

In the figure on page 3-5 there is a single row of function key indications, but in some menus two rows appear.



To select the upper row of functions (indicated as F11 to F20), hold down the SHIFT button to interchange the two rows of indications, then press the corresponding function key F1 to F10.

Returning to the previous menu

To return to the menu displayed before the current menu, press the EXIT button.

Moving the cursor

In wipe pattern selection and SETUP menu screens, a cursor appears.
To move the cursor press one of the cursor movement buttons (↑ ↓ ← →).

Setting parameter values

You can change a currently displayed parameter in either of the following ways.

- Turn the one of the four control knobs corresponding to the parameter.
- Press the KEY PAD (1 to 4) button corresponding to the parameter, then enter the new value using the numeric keypad section.

The following is a concrete example showing adjustment using the control knobs, as a typical case.

4 Adjust the parameters.

When you have selected a box:

Knob	Parameter	Setting
1	Top	Top edge position (0.00 to 100.00)
2	Left	Left edge position (0.00 to 100.00)
3	Right	Right edge position (0.00 to 100.00)
4	Bottom	Bottom edge position (0.00 to 100.00)
1	Softness	Set the degree of edge softness (0.00 to 100.00)

Example of parameter settings

To change the parameter group

When more than one parameter group is shown, to display the parameters in a different group, press the corresponding function key or the cursor ← or → button.

Again, when there are five or more parameters in the same group, as shown in the example above, to display different parameters, press the cursor ↑ or ↓ button.

In the example, when the parameters “Top”, “Left”, “Right”, and “Bottom” are displayed, press the ↑ or ↓ button to change to the “Softness” parameter. You can then adjust the edge softness with control knob 1.

The arrows in icons appearing on the menu screen, as shown below, indicate which cursor buttons can be used.

In the example below, the vertical arrows indicate that the cursor ↑ and ↓ buttons toggle between the 1/2 and 2/2 selections. The horizontal arrows indicate that the cursor ← and → buttons switch to other parameter groups.

To return a parameter value entered with the numeric keypad to its previous value

After setting a parameter by entering a numeric value, you can undo this setting, using what is known as the “LAST X” function. To do this, press the LAST X button in the numeric keypad section. This function only operates, however, if there has been no intervening operation.

To copy parameter values

You can copy the value of a currently displayed parameter into the display in the numeric keypad section, and thence to another parameter.

1 Press the KEY PAD button corresponding to the value you wish to copy.

2 Press the STORE/LEARN button in the numeric keypad section.

This copies the parameter value to the display in the numeric keypad section.

3 Change the menu display to the destination parameter, and press the KEY PAD button corresponding to this parameter.

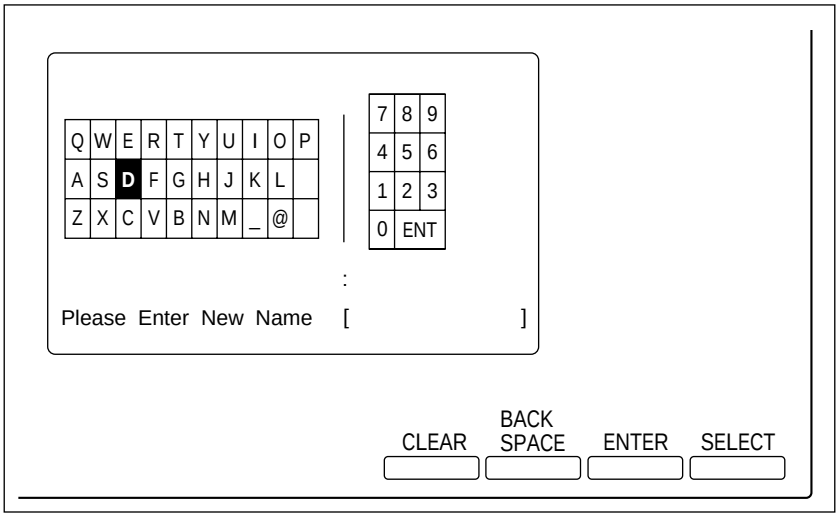
The displayed value does not change.

4 Press the ENTER button.

This sets the parameter you selected in step **3** to the copied value.

Text input

In the procedure for assigning a name to a register *(page 8-11)*, applying a name to a file *(pages 9-8 and 9-12)*, applying a label to a floppy disk *(page 9-10)*, or allocating a source name to an input signal *(page 13-43)*, the character input screen shown below appears.



Character input screen

Use the following procedure to input a name. The procedure before and after this step is described in the relevant section.

1 Use the cursor movement buttons(↑ ↓ ← →) to align the cursor with the desired character.

2 Press F10 (SELECT).

This enters the character you selected.

3 Repeat steps **1** and **2** up to a maximum of eight characters.

- To delete the last character entered, press F8 (BACKSPACE).
- To delete all the characters so far entered, press F7 (CLEAR).

You can also enter numeric characters directly, using the numeric keypad section.

4 Press F9 (ENTER) or press the ENTER button in the numeric keypad section.

This confirms the sequence of characters entered.

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Chapter 4
Basic Operations for Image Creation

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Before Beginning Image Creation

Before considering the operations of image creation proper, this section describes how the various video sources are combined to produce the final program output.

Video Signal Flow

In the HDS-7150, the output video of the M/E bank is fed to the PGM/PST bank where the signals are subjected to final processing as required before being output as the final program video.

The final program video is output from the PGM OUTPUTS connectors of the switcher.

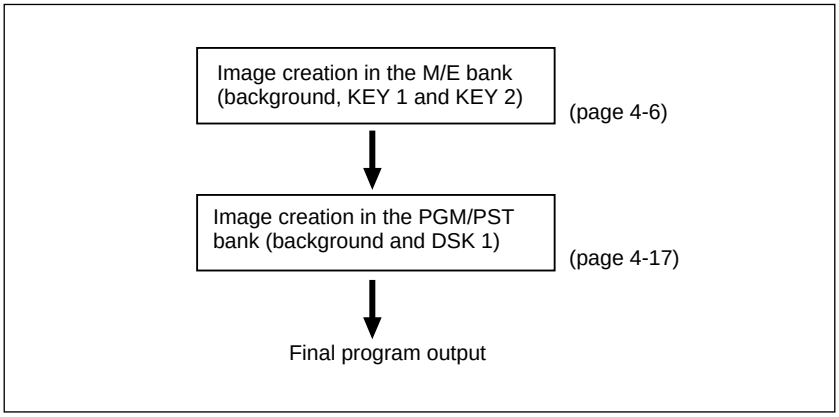
Image creation in the M/E bank (background, KEY 1 and KEY 2)
(page 4-6)
Image creation in the PGM/PST bank (background and DSK 1)
(page 4-17)
Final program output

Signal Selection

Pressing a cross-point button selects a signal on the corresponding bus, but in some cases a single row of cross-point buttons is used for more than one bus. In this case it is first necessary to delegate the row of cross-point buttons to the required bus. The next section describes which rows of cross-point buttons belong to which buses.

For details of the assignment of signals to cross-point button columns, see the next page.

Cross-point buttons and buses

The relation between cross-point buttons and buses is as shown in the following table.

Bus	Button row	Banks	Delegation operation
Background A	A	M/E	None required.
Background B	B		
Key 1 and key 2 fill	K	M/E	Press the key bus delegation button KEY 1 or KEY 2 in the signal selection section, turning it on.
Key 1 and key 2 source	K	M/E	Press and hold down the key bus delegation button KEY 1 or KEY 2 in the signal selection section.
	Auxiliary bus cross-point buttons		
Program	PGM	PGM/PST	None required.
Preset	PST		
DSK 1 fill	DSK	PGM/PST	Press the key bus delegation button DSK 1 in the signal selection section, turning it on.
DSK 1 source	DSK	PGM/PST	Press and hold down the key bus delegation button DSK 1 in the signal selection section.
AUX 1 to AUX 5	Auxiliary bus cross-point buttons		Press the required auxiliary delegation button, turning it on.
Edit preview			
M/E and PGM/PST utility buses			

Assigning signals to cross-point button columns

Each row of cross-point buttons in the M/E and PGM/PST banks and auxiliary bus bank includes 19 basic buttons for signal assignment. It is also possible to assign a shift function to one button, allowing a maximum total of 36 assignable signals. Using a setup menu operation, you can assign any of the columns in either the unshifted or shifted state to any of the signals from the PRIMARY INPUTS 1 to 15 connectors on the switcher unit, or to various signals generated internally by the switcher.

For the procedure for assignment, see page 13-43.

In principle, the signal assignment is to a column of buttons so that the buttons in the same column select the same signal regardless of which bank or row they are in. There are however cases in which a particular signal cannot be selected on a particular bus.

For details of the restrictions on selecting certain signals, see page 13-43.

To use the shift function

The 19 cross-point buttons in each row are numbered 0 to 18. Normally the rightmost button is the shift button; the buttons to which signals are assigned are then numbered 0 to 17 in the unshifted state, and 20 to 37 in the shifted state.

To select the signal corresponding to the unshifted state, press the required button alone; to select the signal corresponding to the shifted state, hold down the shift button, then press the required button.

It is also possible, using a setup menu operation, to switch the shift button to be the leftmost button instead of the rightmost. In this case the assignable signals are numbered 1 to 18 and 21 to 38. You can use a setup operation to make the shift button locked when it is pressed.
All shift function settings are carried out in a setup menu *(see page 13-48).*

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Source name indications

Using a setup menu operation, you can assign an identifier of up to eight characters to each signal, for display on the control panel.

For details of the procedure for assigning signal names, see page 13-45.

The source name display on the control panel shows the first two and the last two characters of the specified identifier.
When using the shift function, hold down the cross-point SHIFT button to show the identifiers assigned to the shifted buttons.
If you are using the switcher and an HDS series routing switcher connected by a BKDS-7700 Tally Interface Unit, the signal names selected on the routing switcher can be displayed.
If the shift button lock function is set to lock the shift button when it is pressed, the source name displayed depends on the state of the A-bus or PGM bus shift button on the corresponding bank.

Reentry buttons

To use the output of the M/E bank as a background input to the PGM/PST bank, press the reentry button (M/E) at the right of the PGM/PST bank.

Cross-point button indications

In any row of cross-point buttons, the last button pressed is selected, and lights. A button which lights red indicates that the signal is being fed to the corresponding bus, and is forming part of the program output. A button which lights amber is selected, but the signal is not currently reaching the program output.

Cross-point button indications and meaning

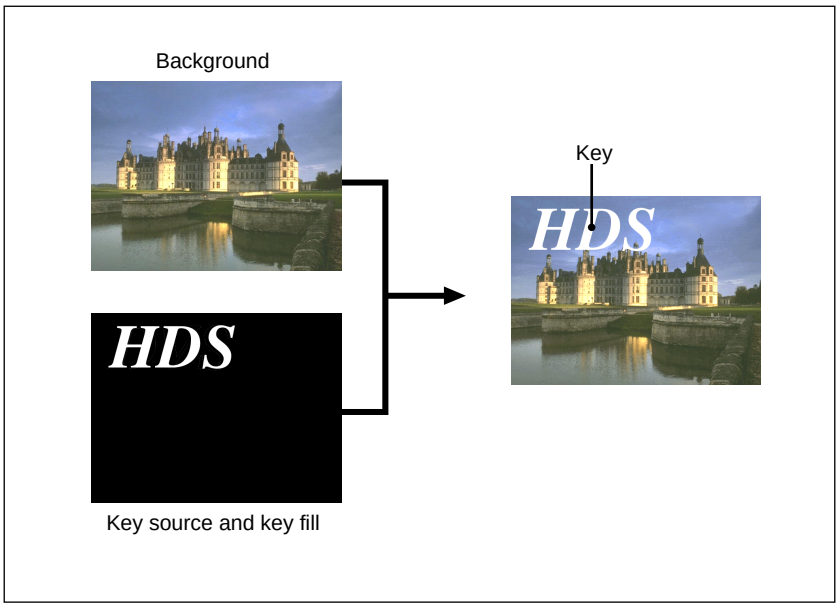
Button	State	Meaning
Lit in amber	Low tally	The signal is not forming part of the program output.
Lit in red	High tally	The signal is forming part of the program output.

Using the Mix/Effects Bank

This section describes some of the effects which you can create using the mix/effects bank.

Backgrounds and Keys

You can use the mix/effects bank to insert one or two keys into a background video image. To define a key requires two video signals, the key source, which specifies which part of the background is cut out, and the key fill, which supplies the different video to insert in the cutout.
The following illustration shows an example in which the key source and key fill signals are actually the same (“self-keying”), and which superimposes some lettering on the background.



Background and key

Key types

For the M/E bank, you can use the following key types.
See the page numbers indicated in parenthesis for more details.
• Luminance key *(page 4-29)*
• Linear key *(page 4-29)*
• Clean key *(page 4-30)*
• Chroma key *(page 4-30, 5-2)*
• Pattern key *(page 4-30)*

Basic Operating Procedure

On the M/E bank, the change from the existing (or "old") video to new video is termed a transition.
The following is the basic procedure for carrying out a transition on the M/E bank.

1 Select the background video on the background A bus, using the cross-point buttons.

2 Select whether the transition is a background or key transition with the next transition selection buttons in the transition control section.
• For a background transition: press the BKGD button, turning it on.
• To insert or remove key 1: press the KEY 1 button, turning it on.
• To insert or remove key 2: press the KEY 2 button, turning it on.
• To invert the priority of the two keys: press the PRIOR button, turning it on.

You can press two or more buttons simultaneously, turning them on.

For more details, see the section "Selecting the Next Transition" (page 4-10).

(Continued)

3 Prepare the new video.
- Select a new background on the background B bus, using the cross-point buttons.
- When inserting a key, select the key signals and make any other required settings in the key control section.

For more details of key signal selection and other settings, see the section "Basic Operation for Key Settings" (page 4-36).

For a cut, skip to step **6**. For all other transitions, continue with step **4**.

4 Select the transition type with the buttons in the transition type selection section.
- For a dissolve: press one of the MIX, NAM, and SUPER MIX buttons, turning it on.
- For a wipe or DME wipe: press one of the WIPE, DME 1, and DME 2 buttons, turning it on. For a dual DME wipe, press both of the DME 1 and DME 2 buttons simultaneously, turning them on.

Note

DME2 and dual DME wipes can be used when the HDME-7000 Digital Multi Effects is connected.

For more details of transition types, see the section "Selecting the Transition Type" (page 4-13).

5 Make the necessary settings, depending on the selected transition type.

For details of the settings, see the sections indicated in the following table.

Super Mix	"Super Mix Settings" (page 4-16)
Wipe	"Basic Operation for Wipe Settings" (page 4-53)
DME wipe	"DME Wipe Settings" (page 4-71)
Dual DME wipe	"DME Wipe Settings" (page 4-71)
Transition limit	"Setting a Transition Limit" (page 4-15)

6 Use the transition control section to execute the transition.
- For a gradual transition such as a wipe or dissolve: press the AUTO TRANS button, or use the fader lever.
- For an instantaneous transition: press the CUT button.

For more details, see the section "Executing a Transition" (page 4-21).

Background and key transitions

Operation to switch the images by using the transition control section is called “M/E transition” or “PGM/PST transition” depending on the name of the bank to be used.
Besides, operation to change the background to another is called “Background transition,” and inserting and removing the key are called “key transition”.

Key cut

Suppose that in step **2** of the procedure above you pressed just the KEY 1 button, and then in step **6** pressed the CUT button. This cuts key 1 in or out, i.e. instantaneously, and amounts to a cut transition on the M/E bank.

Note

You cannot use a DME wipe for a key transition on the PGM/PST bank.

Checking the status of keys and their priority

The ON and OVER indicators above the KEY 1 and KEY 2 buttons in the transition control section provide additional status information for the two keys. The following table shows the significance of the various button and indicator states. (The key whose priority is indicated as “over” is the key which appears when the two keys overlap.)

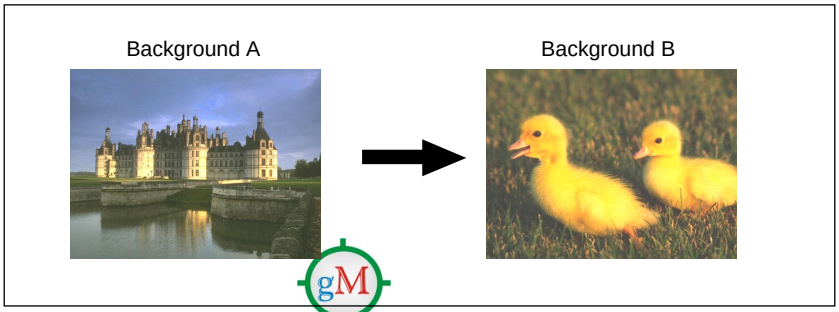
Indicator/button state		Key state
Transition control section	Key 1 or 2 ON indicator lit	Corresponding key is included in the output from the M/E bank.
	Key 1 or 2 OVER indicator lit	Corresponding key is over the other key.

Selecting the Next Transition

In a transition you can change between the two backgrounds, or insert or remove either of the keys, or carry out any of these operations simultaneously. The following figures illustrate some possible effects.

Background transition

A background transition switches from the currently selected background A (old video) to background B (new video).



Background transition

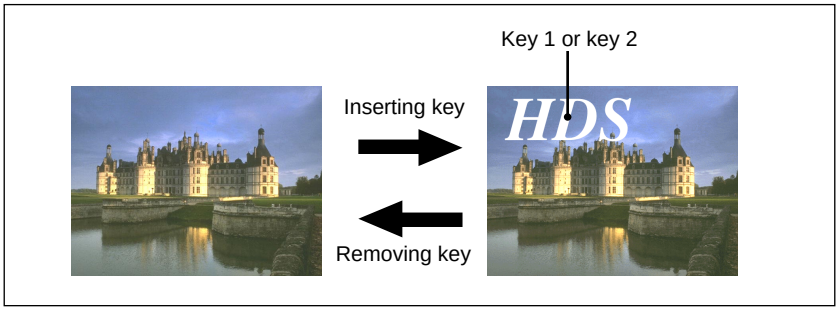
In bus flip-flop mode, a background transition always proceeds from background A to background B, and at the end of the transition the signal selections on the two background buses flip-flop. This means that except during a transition it is always background A which feeds the output of each of the mix/effects banks.

For more details, see the section "Bus fixed mode and bus flip-flop mode" (page 4-27).

Key transitions

To insert or remove a single key

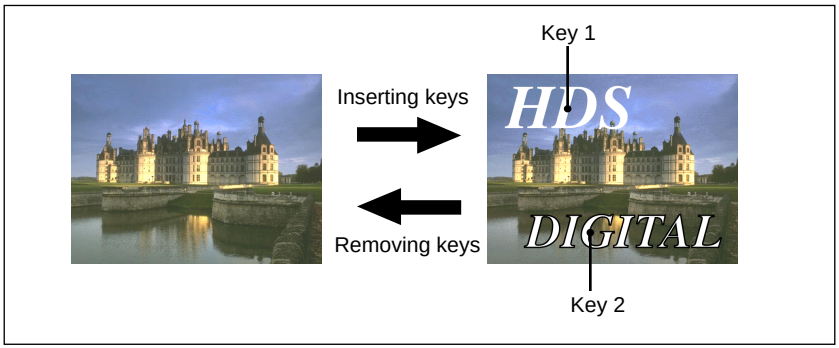
This inserts or removes key 1 or key 2 in the current video.



Inserting and removing key 1 or key 2

To insert or remove both keys simultaneously

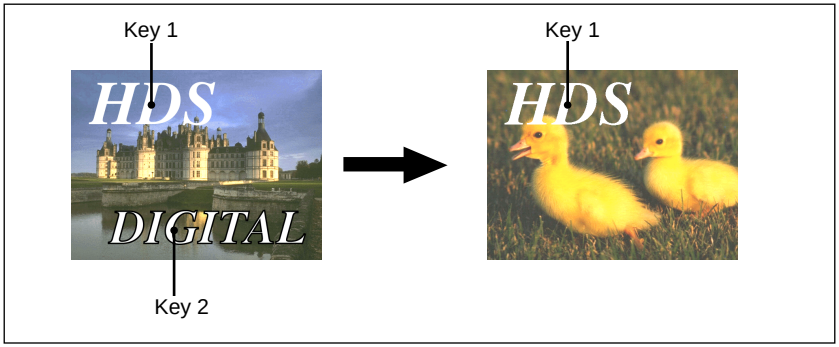
This inserts or removes both key 1 and key 2 in the current video.



Inserting and removing key 1 and key 2 simultaneously

Carrying out background and key transitions simultaneously

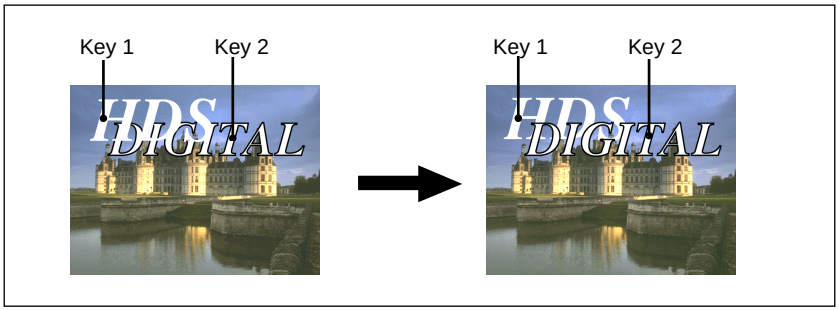
You can switch any combination of the background and keys 1 and 2 simultaneously. The following example illustrates leaving key 1 unchanged, while changing both the background and key 2.



Changing the background and key 2 simultaneously

Inverting the priority of keys 1 and 2

This transition inverts the priority of the two keys. In the following example, before the transition key 1 is over key 2, and parts of key 2 may be obscured by key 1. After the transition this relation is reversed.



Inverting the priority of keys 1 and 2

Selecting the Transition Type

The most basic distinction is between an instantaneous transition, or cut, and the various types of gradual transition.
The HDS-7150 provides the following types of gradual transition; to select one of these, press the corresponding button in the transition control section, turning it on.

Selecting the transition type

Transition type		Selection button
Normal mix dissolve		MIX
NAM (non-additive mix) dissolve		NAM
Super Mix dissolve		SUPER MIX
Wipe		WIPE
DME wipe	Single mode	DME 1 or DME 2
	Dual mode	Press DME 1 and DME 2 simultaneously, turning them on.

The following sections describe each of these transition types.

Normal mix dissolve

In a dissolve, the new video fades in as the old video fades out. Using a normal mix, the new video level is increased from 0% to 100% as the old video is reduced from 100% to 0%, in such a way that the overall signal level is always 100%. At the mid-point of the transition (when the fader lever is in the center position), the output of each signal is 50%.

NAM (non-additive mix) dissolve

In this variant dissolve, the video signals are combined by a non-additive mix, and the new video level is increased from 0% to 100% over the first half of the transition, and the old video is reduced from 100% to 0% over the second half. A non-additive mix means that the two video signals are compared, and the higher one is used as the output; thus new highlights fade in first, and old highlights fade out last.

Super Mix dissolve

This is another variant dissolve, in which again the new video level is increased from 0% to 100% over the first half of the transition, and the old video is reduced from 100% to 0% over the second half.
It is also possible to set the video levels at the mid-point of the transition to a value other than 100%.

For details of the output level settings, see the section "Super Mix Settings" (page 4-16).

Wipe

In a wipe, the new video replaces the old video according to the selected wipe pattern.

For more details, see the section "Wipes" (page 4-48).

DME wipe

When there are the optional HKDS-7061 Video Modifier Board and the HKDS-7071 Digital Multi Effects Board mounted in the switcher, you can use DME effects for wipe transition. DME effects for wipe transitions are also possible when there is an HDME-7000 Digital Multi Effects connected to the switcher.

For more details, see the section "DME Wipes" (page 4-64).

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Setting a Transition Limit

Normally the range of a transition corresponds to a complete switch from the old video to the new video. Alternatively, using the transition limit function, you can restrict the extent to which the transition is executed, so that in the state corresponding to a 100% movement of the fader lever, the transition is still incomplete.
For example if you enable this function with a 50% limit setting, the transition proceeds to the mid-point, then stops.
When this function is enabled, the visual indication of the next transition selection button in the transition control section which is selected changes from amber to green.

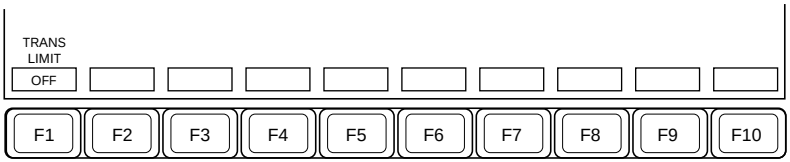
Carry out the settings for this function in the BKGD/TRANS menu for the M/E bank. For example, to set a transition limit for the M/E bank, use the following procedure.

1 In the menu control section, press the BKGD/TRANS top menu button in the M/E group.

The M/E BKGD/TRANS menu appears in the menu screen.

2 Select item 2 (LIMIT/S-MIX).

The LIMIT/S-MIX menu appears.



Function key indications in the LIMIT/S-MIX menu

3 Press F1 (TRANS LIMIT), turning it on.

(Continued)

4 Turn control knob 4 to set the transition limit.

Knob	Parameter	Setting
4	Trans Limit	0.00 to 100.00%

- At the minimum limit setting (0%), moving the fader lever has no effect at all.
- At the maximum limit setting (100%), the entire transition occurs as normal, but the background A and B buses do not flip-flop.

Super Mix Settings

By default, at the mid-point of a Super Mix transition the levels of both background A (old video) and background B (new video) are 100%. It is possible to change these values, however, as follows.
As for the transition limit setting described on the previous page, carry out the settings for this function in the BKGD/TRANS menu for the M/E bank.

To make the Super Mix settings use the following procedure.

1 and **2** (Same as the procedure on the previous page.)

3 Adjust the parameters with control knobs 1 and 2 as follows.

Knob	Parameter	Setting
1	A Gain	Output level for background A (0.00 to 100.00%)
2	B Gain	Output level for background B (0.00 to 100.00%)

Using the Program/Preset Bank

The PGM/PST bank provides control of the final program output, with background transitions and two downstream key insertions.

Overview

Types of transition which can be carried out

You can carry out any of the following types of transition on the backgrounds and downstream key.

- Cut
- Dissolve
- Wipe
- DME wipe
- DME wipe (dual mode)

Notes

- DME2 and dual DME wipes can be used when the HDME-7000 Digital Multi Effects is connected.
- DME and dual DME wipes cannot be applied to downstream key 1.

Key types

You can use the following downstream key types. See the page numbers indicated in parentheses for more details.

- Luminance key *(page 4-29)*
- Linear key *(page 4-29)*
- Clean key *(page 4-30)*
- Pattern key *(page 4-30)*

Basic Operating Procedure

The following is the basic procedure for carrying out a transition on the PGM/PST bank.

1 Select the background video, using the cross-point buttons in the PGM row of the signal selection section.

2 Select which to carry out, a background transition or a downstream key transition, with the next transition selection buttons in the transition control section.
- For a background transition: press the BKGD button, turning it on.
- To insert or remove downstream key 1: Press the DSK 1 button, turning it on.

You can press two or more buttons simultaneously, turning them on.

For more details, see the section "Selecting the Next Transition" (page 4-10).

3 Prepare the new video.
- Select a new background, using the cross-point buttons in the PST row.
- When inserting a downstream key, select the key fill and key source signals and make any other required settings.

For more details of key signal selection and other settings, see the section "Basic Operation for Key Settings" (page 4-36).

To switch the video instantaneously, skip to step **6**. For all other transitions, continue with step **4**.

4 Select the transition type by pressing the corresponding transition type selection button, turning it on.
- For a mix: press the MIX, NAM, or SUPER MIX button, turning it on.
- For a wipe or DME wipe: press one of the WIPE, DME 1, and DME 2 buttons, turning it on. For a dual DME wipe, press both of the DME 1 and DME 2 buttons simultaneously, turning them on.

For more details of transition types, see the section "Selecting the Transition Type" (page 4-13).

5 Make the settings required for the selected transition type.

For details of the settings, see the sections indicated in the following table.

Super mix	“Super Mix Settings” (page 4-16)
Wipe	“Basic Operation for Wipe Settings” (page 4-53)
DME wipe	“DME Wipe Settings” (page 4-71)
Dual DME wipe	“DME Wipe Settings” (page 4-71)
Transition limit	“Setting a Transition Limit” (page 4-15)

6 Use the transition control section to execute the transition.

- For a mix or wipe (gradual transition): press the AUTO TRANS button or manipulate the fader lever, turning it on.
- For a cut (instantaneous transition): press the CUT button, turning it on.

For more details, see the section “Executing a Transition” (page 4-21).

Notes

- You cannot use a DME wipe for a key transition on the PGM/PST bank.
- DME2 and dual DME wipes can be used when the HDME-7000 Digital Multi Effects is connected.

Using the Downstream Key (DSK) Control Section

Inserting or removing a downstream key

The downstream key (DSK) control section to the right of the PGM/PST bank allows you to simplify the procedure for inserting or removing a downstream key.

1 To recall one of the four snapshots that have been saved, press the corresponding DSK1 snapshot button.

To save the frequently-required key settings beforehand
Use the DSK1 snapshot buttons (1 to 4) *(see page 4-47).*

2 To insert or remove the recalled key instantaneously, press the DSK1 ON button.
To insert or remove the recalled key gradually (mix), press the DSK MIX button.

For information about how to set the DSK mix transition rate, see the section "To set the transition rate" (page 4-83).

Carrying out a fade-to-black

To carry out a fade-to-black, press the FADE TO BLACK button in the DSK control section.

The FADE TO BLACK button lights amber during the transition, and changes to red when the transition is completed.

For details of setting the fade-to-black transition rate, see the section "To set the transition rate" (page 4-83).
For details of disabling the fade-to-black function, see the section "Making Settings Relating to Control Panel Operation, etc. (PANEL ENABLE Menu)" (page 13-53).

Executing a Transition

This section describes the transition execution modes, transition rate setting, and the procedure for executing a transition.

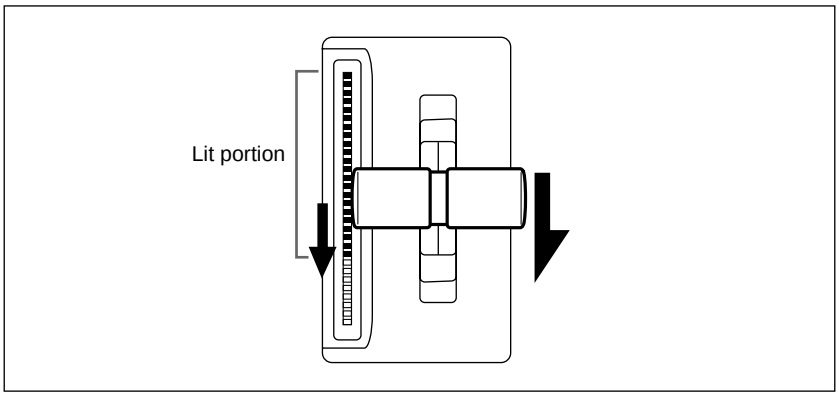
Overview

Transition execution modes

There are two modes: the auto transition mode, carried out by pressing buttons, and the manual transition mode, using the fader levers. It is also possible to combine these two techniques.

Transition progress indicators

The fader lever on each of the M/E and PGM/PST banks has an indicator on the left, comprising 30 LEDs. This shows the current state of progress of the transition, whether it is being executed manually with the fader lever or as an auto transition.



Transition progress indicator

In the example shown in the figure, the transition is a little more than half way completed. When the transition is completed, all of the indicator LEDs go off.

Setting the Transition Rate

You can set the rate of an auto transition, by specifying the duration as the number of frames required. Use the following procedure to set the transition rate before pressing the AUTO TRANS button to carry out an auto transition. To set the transition rate, first specify the bank or keyer for which you wish to carry out the setting, then enter the numeric value from the numeric keypad section.

Setting the transition rate

To set the transition rate for the M/E or PGM/PST bank

Use the following procedure.

1 Press the TRANS RATE button in the numeric keypad section.

2 Press the sub-register selection button corresponding to the bank for which you wish to set the new transition rate, turning it on.

M/E button: M/E bank
P/P DSK button: PGM/PST bank

This displays the transition duration set for the selected bank in the numeric keypad section.

3 Enter the required number of frames for the transition duration.

4 Press the ENTER button.

This confirms the entered value, which appears in the display of the numeric keypad section.
The set duration also appears in the corresponding FRAMES display.

To adjust the duration

Instead of entering a new value, you can enter the difference from the current setting. First press the +/– button, then enter a signed value, and then finally press the TRIM button.
Pressing the +/– button toggles between positive and negative values.

When setting the transition for a DSK mix

When carrying out a downstream keyer mix using the DSK MIX button in the DSK control section, you can set the transition rate using a menu *(see page 4-83)*.

When setting the transition for a fade-to-black

You can use the ALL STATUS menu to apply a transition rate setting to a fade-to-black operation *(see page 4-83)*.

Executing a Transition

This section describes how to execute a transition on the M/E or PGM/PST bank or in the DSK control section.

Executing an auto transition

Use the following procedures to execute an auto transition for all of the items (background and keys) selected by the next transition selection buttons in the transition control section, using the buttons in the auto transition control section.

- For an instantaneous transition, press the CUT button.
- For a gradual (auto) transition, press the AUTO TRANS button. This executes the transition at the rate determined by the current setting of the transition duration. While it is in execution the AUTO TRANS button lights amber.
- To pause an auto transition when the AUTO TRANS button is lit amber (i.e. in execution), press the AUTO TRANS button again. Its color changes from amber to green.
- To resume a paused transition, press the AUTO TRANS button while it is lit green. Its color reverts from green to amber.
- When a transition is in progress or paused, press the CUT button to complete the transition immediately. The AUTO TRANS button then goes off.

To cut a key in or out using the DSK 1 ON button in the DSK control section

To cut a downstream key in or out instantaneously, press the DSK 1 ON button in the DSK control section.
When the key is present in the final program output, the pressed button lights red.

To mix a key using the DSK MIX buttons in the DSK control section

To mix a downstream key, press the DSK MIX button for DSK1 in the DSK control section.
The pressed button lights red when the key is present in the fade-in or fade-out portion of the final program output.

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To invert the priority of keys 1 and 2 on the M/E bank

If, for example, key 1 is over key 2 (the key 1 OVER indicator in the transition control section is lit), to instantaneously invert the relation between the two keys, press the KEY PRIOR button in the transition control section, then press the CUT button. Alternatively, you may press the KEY PRIOR button twice in rapid succession. The key 1 OVER indicator goes out, and the key 2 OVER indicator lights.

Note that you can also invert the key priority with a menu operation *(see page 4-38)*.

Executing a manual transition with the fader lever

To carry out a manual transition, you can control the progress of the transition directly, using the fader lever as follows.

- To execute a complete transition, move the lever from one end of its range to the other.
- To pause the transition, simply stop moving the lever.
- To resume the transition, start moving the lever again.

Combining auto and manual transition control

You can use either of the following techniques to combine manual and auto transition control.

To switch from auto to manual transition control

After starting an auto transition by pressing the AUTO TRANS button, if you move the fader lever to the position corresponding to the current transition state, the auto transition control is released, the AUTO TRANS button goes off, and from now on the fader lever controls the transition.

To switch from manual to auto transition control

Stop the fader lever.

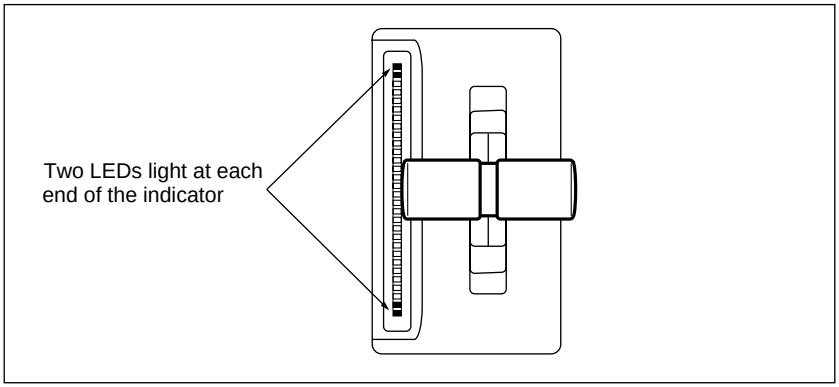
- If you press the CUT button, the transition is completed instantaneously.
- If you press the AUTO TRANS button, auto transition control starts from the transition state represented by the current fader lever position, and completes the transition at the set rate (taking a time proportional to the remaining transition).

Non-sync state

If you start a manual transition with the fader lever, then switch to auto transition, the position of the fader lever no longer agrees with the state of the transition. This is termed the non-sync state, and in this state the transition progress indicator appears as shown below, with only the ends (two LEDs) lit.

In the non-sync state, moving the fader lever has no effect on the transition. To use the fader lever again, first move it to either end of its range. This releases the non-sync state, and all LEDs in the transition progress indicator go off.

Even in the non-sync state, you can press the AUTO TRANS button to carry out an auto transition. In this case, the indicator shows the progress of the transition as usual, then when the transition completes, returns to the non-sync indication.



Non-sync state

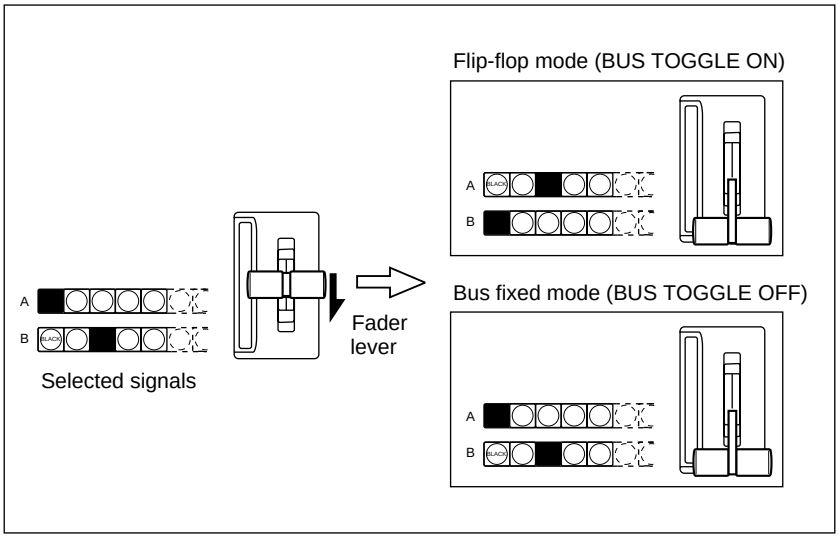
Bus fixed mode and bus flip-flop mode

The following description of the bus fixed mode and bus flip-flop mode takes the M/E bank as an example, but the same description also applies to the PGM/PST bank.

The default operating mode for the switcher is bus flip-flop mode, in which an M/E background transition always proceeds from background A to background B, and at the end of the transition the signal selections on the two background buses flip-flop. This means that except during a transition it is always background A which feeds the output of each of the mix/effects banks.

The HDS-7150 can also, however, operate in bus fixed mode. This treats the two background buses A and B equally: a transition may go from A to B, or back from B to A, and there is no automatic flip-flop. In this case the fader lever position also has a fixed relation to the output: 100% background A when it is at the top, and 100% background B at the bottom position.

To select the bus flip-flop mode or bus fixed mode, set the BUS TOGGLE item in a setup menu *(page 13-48)*: "ON" for bus flip-flop mode and "OFF" for bus fixed mode.



Bus flip-flop mode and bus fixed mode

Fader lever operation in bus fixed mode

• In the bus fixed mode there is a fixed relationship between the position of the fader lever and the signal output on each bus. Depending on the direction of the transition, the fader lever must therefore always be moved in a particular direction, as shown in the following table. This does not affect an auto transition, which is executed regardless of the fader lever direction.

Fader lever operating direction in bus fixed mode

Transition	Transition direction	Fader lever movement
Background	Background A → Background B	Downward
	Background B → Background A	Upward
Keys 1 and 2	On → Off (Deletion)	Downward
	Off → On (Insertion)	Upward

• When the transition affects two or more of key 1, key 2 and the backgrounds, the transition cannot be effected unless all are in accordance with the table above.
• If, because of an auto transition for example, the fader lever position becomes out of synchronization with the signal outputs as indicated in the table, the fader lever must first be moved to the correct position before it affects the transition state. This non-sync movement has no effect on the video output.

Keys

This section describes the settings for keying operations (excluding chroma keying) which you can make on the M/E and PGM/PST banks.

For details of chroma key operations and settings, see Chapter 5.

Overview

A key is a video effect in which a hole is cut in the background video, and filled with a different video image, or simply a matte if the shape of the hole corresponds to titling for example. The video signal which cuts the hole, determining its shape, is termed the key source signal, and the video used to fill the hole is termed the key fill signal. A component of the system which carries out keying is called a keyer.

The HDS-7150 provides two keyers (KEY 1 and KEY 2) on the M/E bank and one downstream keyer (DSK 1) on the PGM/PST bank.

Key types

The key type determines the technique used to cut the hole in the background video. The M/E bank provides the following five key types.

Luminance key

The hole is cut at a certain level of the Y (luminance) signal of the key source.

On the HDS-7150, the key source is passed through a filter to apply S-curve compensation, and the resulting signal is used to determine the key.

Linear key

This is a variant type of luminance key, but with reduced variability in gain. On the HDS-7150, the key source Y signal is used to determine the key.

Clean key

In a luminance or linear key the key source is used as a mask on both the background (i.e. to cut the hole) and on the key fill (i.e. trimming it to fill the hole). The clean key technique, on the other hand, does not mask the key fill, but simply mixes it with the background from which the hole has been cut. This tends to provide a higher quality result, but means that the key fill signal must already be trimmed to fit the hole (i.e. black everywhere else).

Chroma key

A particular hue (usually blue) in the key source signal is used to determine the hole to be cut in the background.

Option Using chroma keying requires the optional HKDS-7031 Chromakey Board.

Note

Chroma key cannot be used on the PGM/PST bank.

For details of chroma key operations, see Chapter 5.

Pattern key

This uses a wipe pattern (generated by the special-purpose wipe generators on the M/E bank and the PGM/PST bank) to cut the hole in the background and insert the key fill. As for a wipe, you can also apply a variety of modifications depending on the pattern, but the wipe direction and edge modifiers are not available.

Modifications to keys

There are a number of variables you can adjust to vary a key effect.

To invert the key source

This allows a signal comprising black letters on a white background, for example, to be used as a key source to insert the letters.

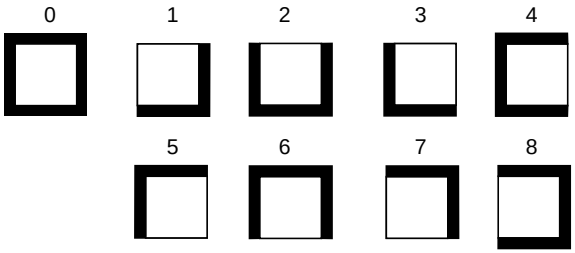
Edge modifications

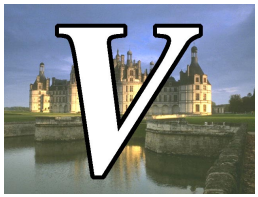
It is possible to modify the edge of the key in several ways, for example adding a border or softening the edge.

The following figures illustrate some of the edge modifications. Unmodified edge is sometimes called “Normal edge”.

Normal (unmodified) edge

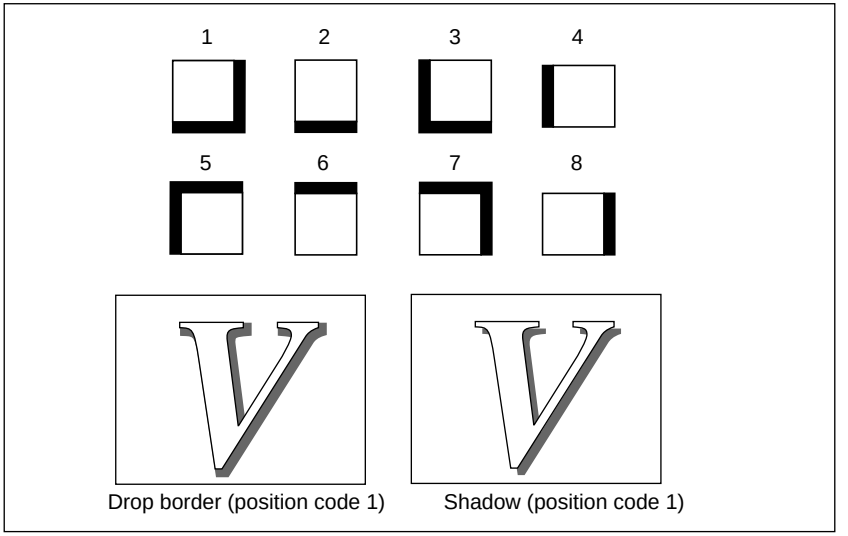
Border: You can apply a constant-width border to the edge of the key. There are nine possibilities (numbered 0 to 8) for the border position.



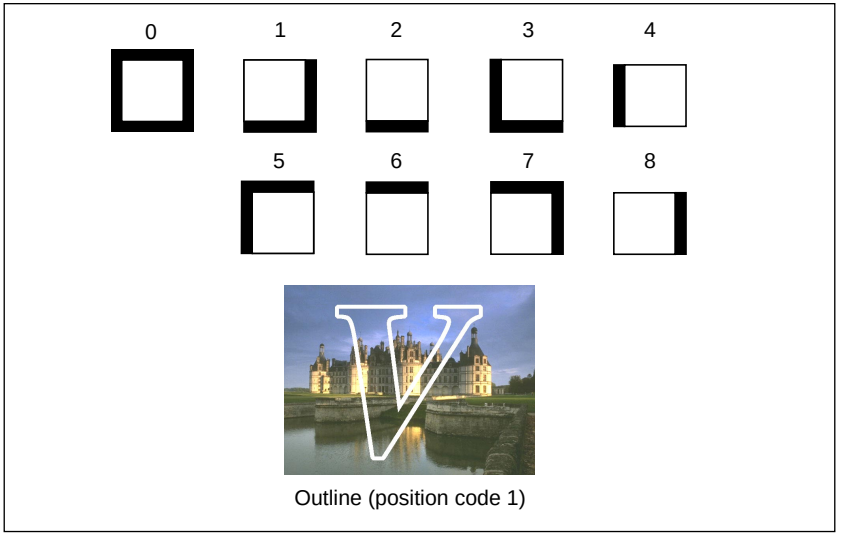


Border (position code 0)

Drop border or shadow: There are eight positions (numbered 1 to 8) to apply a drop border or shadow.



Outline: You can apply an outline to the edge of the key. There are nine possibilities (numbered 0 to 8) for the outline position.



Edge fill: When using a border, drop border or shadow effect, you can select the edge fill signal to be inserted in this area.
On the M/E bank, you can select either the special-purpose color matte generator, or the external video signal on the utility bus. On the downstream keyer a color matte signal is automatically selected for the edge fill.
The outline effect uses the key fill signal as the edge fill, and fills the interior of the key with a background.

Soft edge: This gives the edge a softened appearance.

Masking

You can apply a mask to adjust the area to which the key applies, whether to obtain a special effect, or to "clean up" a key source signal.
A mask applied to the key source signal, forcing part of the image to be background, is termed a key mask, and a mask applied to the background signal, forcibly inserting the key fill signal in part of the image, is termed a background mask.
The mask source can a rectangular box, a special-purpose mask pattern, or an external signal selected on the utility bus.

Unmasked key

Box mask applied

Processed key function

The term “processed key” refers to the function whereby a keyer in a switcher operates in combination with the DME boards/unit to apply a DME effect to a key. This function is not available on the downstream keyer.

When the processed key function is enabled, before combination with the background, the key fill and key source signals produced by the switcher keyer (with borders, shadows and other processing already effected) are output to the DME from the switcher auxiliary buses. These signals are subjected to DME processing to add extra effects, and then returned to the switcher. Finally the signals returned from the DME undergo further processing and are then combined with the background.

Since the same keyer is used both for the initial processing and for the processing of the signals returned from the DME, you can use keyers on a bank for greater efficiency.

Option

Using the processed key function requires the optional HKDS-7061 Video Modifier Board and HKDS-7071 Digital Multi Effects Board, or the HDME-7000 Digital Multi Effects.

Note

It is impossible to use the processed key function on the PGM/PST bank.

DSK snapshots

You can instantly save all of the key settings, except the key on or off state on the PGM/PST bank, in a special-purpose register, and recall them as required.

For details of saving and recalling key snapshots, see the section “DSK snapshot operations” (page 4-47).

Key memory function

For each signal selected as a key source, this function automatically saves the parameters (Clip, Gain, and Density, Filter, Left Pos, and Right Pos, or Size, Softness, and Density) in memory. When you select the same signal again, the parameters are recalled with it. Different sets of parameters are saved, depending on the combination of key source, keyer, and key type.

You can use a setup menu *(see page 13-26)* to toggle the key memory function on and off.

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Saving and recalling default values of parameters

You can make default values of key parameter settings saved in memory for a particular combination of signal selected as the key source on a bank, keyer, and key type.

Use a setup menu to save the values *(see page 13-15).*

To recall the default values for M/E key 1, for example, select the signal as key source with the M/E KEY 1 menu displayed on screen, and hold down the function key for the required key type.

Resetting all of the key modifiers together to the default settings

It is possible to reset all of the key modifiers, including key invert, key edge, and key mask.
To reset the key modifiers, hold down the top menu button corresponding to the keyer on which execution is to occur. For example, for M/E keyer 1, hold down the KEY 1 button in the M/E group in the menu control block.
You can determine the default settings using the SETUP menu.

For details about the default settings, see the section on the BACKUP menu (page 13-15).

Basic Operation for Key Settings

This section describes the basic menu operations for key settings for the M/E bank and PGM/PST bank.

Key setting menus

The key setting menus are listed in the following table.

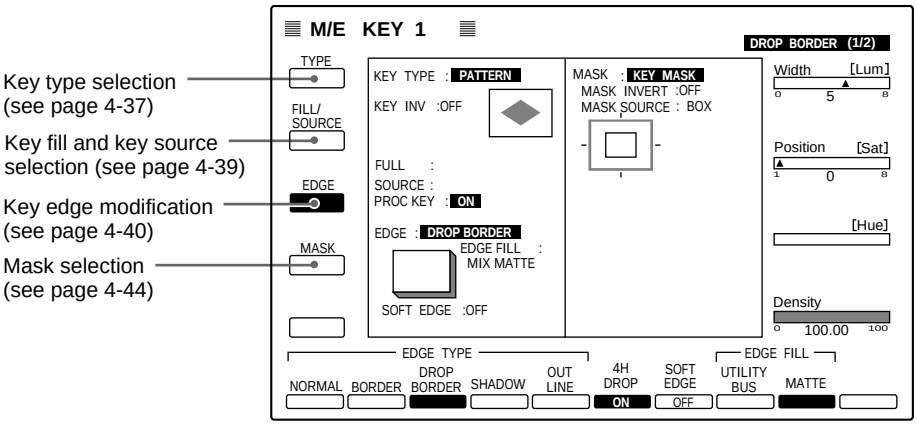
Bank	Keyer	Menu
M/E	key 1	M/E KEY 1
	key 2	M/E KEY 2
PGM/PST	DSK 1	DSK 1

To access a key setting menu

For example, to access the M/E KEY 1 menu, use either of the following operations:

- Press the KEY 1 top menu button in the M/E group of the menu control section.
- In the transition control section of the M/E bank, press the KEY 1 next transition selection button twice in rapid succession.
- In the signal selection section of the M/E bank, press the key bus delegation button KEY 1 twice in rapid succession.

When you carry out any of the above operations, the M/E KEY 1 menu shown below appears. If you pressed the KEY 1 button in the next transition control section twice in rapid succession, at the same time as the menu appears the key bus delegation buttons are delegated to KEY 1.



Example of M/E KEY 1 menu display

The M/E KEY 2 menu, DSK 1 menu and other corresponding menus are similar in appearance.

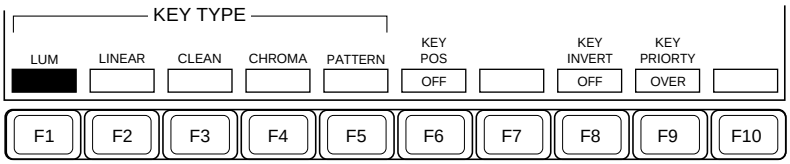
The following description always takes the M/E KEY 1 menu as an example for basic key setting operations.

Selecting the key type

Use the following procedure to select the key type for key 1 on the M/E bank.

1 In the M/E KEY 1 menu, select item 1 (TYPE).

The TYPE menu appears.



Function key indications in the TYPE menu

2 Press one of F1 through F5 to select the key type.

F1 (LUM): luminance key
F2 (LINEAR): linear key
F3 (CLEAN): clean key
F4 (CHROMA): chroma key
F5 (PATTERN): pattern key

You can now adjust the parameters for the selected key type.

Option

Using chroma keying requires the optional HKDS-7031 Chromakey Board.

3 If you pressed F4 or F5 in the preceding step, set the corresponding parameters, as required.

- If you selected chroma key, make the settings in the M/E CHROMA KEY menu *(see Chapter 5)*, then return to the M/E KEY 1 menu.
- If you selected pattern key, make the wipe pattern selection and modifier settings in the M/E WIPE menu *(see page 4-54)*, then return to the M/E KEY 1 menu.
  When you select a wipe pattern for the pattern key, the EDGE and DIRECTION modifier settings in the WIPE menu become invalid. You can make edge settings from the M/E KEY 1 menu.

(Continued)

4 Adjust the parameter values.

When you have selected a luminance key, linear key, or clean key:

Knob	Parameter	Setting
1	Clip	Set clip level on the key signal (–10.00 to +110.00)
2	Gain	Set key sharpness (0.00 to 100.00)
3	Density	Set key density (0.00 to 100.00)
4	Filter	Select filter coefficient (1 to 5)

When you have selected a chroma key:

Knob	Parameter	Setting
3	Density	Set key density (0.00 to 100.00)

When you have selected a pattern key:

Knob	Parameter	Setting
1	Size	Set pattern size (0.00 to 100.00)
2	Softness	Set degree of edge softness (0.00 to 100.00)
3	Density	Set key density (0.00 to 100.00)

5 If necessary, make the following settings.

• When you have selected a luminance key, linear key, or clean key, to adjust the width or horizontal position of the key source, press F6 (KEY POS), turning it on, and set the parameters.

Knob	Parameter	Setting
1	Left Pos	Move the left edge of the key (–3.00 to +3.00)
2	Right Pos	Move the right edge of the key (–3.00 to +3.00)

• To invert the sense of the key source signal, press F8 (KEY INVERT), turning it on.

• To reverse the priority of key 1 and key 2, press F9 (PRIORTY), to interchange the OVER and UNDER indications.

OVER: Key 1 is over.

The KEY 1 OVER indicator in the transition control section lights.

UNDER: Key 1 is under.

The KEY 2 OVER indicator in the transition control section lights.

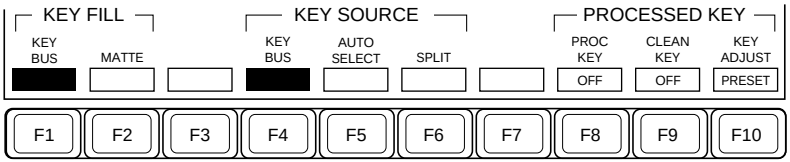
Selecting the key source and key fill

Use the following procedure to select the key source and key fill signals for keyer 1 on the M/E bank.

For details of the operations for the processed key function, see the section "Using the processed key function" (page 4-45).

1 In the M/E KEY 1 menu, select item 2 (FILL/SOURCE).

The FILL/SOURCE menu appears.



Function key indications in the FILL/SOURCE menu

2 Press F1 or F2 to select the type of signal used for key fill: an external signal, or a color matte.

F1 (KEY BUS): Use the external video signal selected on the key fill bus for key 1.
F2 (MATTE): Use a color matte generated internally by the keyer.

3 • If in step **2** you pressed F1 (KEY BUS), select the key fill signal using the cross-point buttons.

Press the key bus delegation button KEY 1 in the signal selection section to delegate the K row of cross-point buttons to the key 1 fill bus, then press the required cross-point button.

• If in step **2** you pressed F2 (MATTE), adjust the color matte parameters with the control knobs as follows.

Knob	Parameter	Setting
1	Luminance	Set luminance (0.00 to 100.00)
2	Saturation	Set saturation (0.00 to 100.00)
3	Hue	Set hue (0.00 to 359.99)

(Continued)

4 Press one of F4 through F6 to select the type of signal used for key source: the same as the key fill signal, or a different signal.

F4 (KEY BUS): Use the signal selected on the key fill bus for the key source (self-keying). This selection automatically switches the key source bus to the same signal as the key fill bus, and it is no longer possible to make a key source bus selection with the cross-point buttons.

F5 (AUTO SELECT): Use the key source signal allocated to this key fill signal in a setup menu. The default is to be the same as the key fill signal (self-keying). This selection also disables key source bus selection with the cross-point buttons.

F6 (SPLIT): Use the video signal selected on the key source bus.

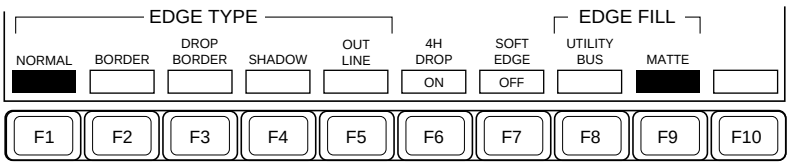
5 If you selected F6 (SPLIT) in step **4**, select the key source signal using the cross-point buttons, as follows.
Press the key bus delegation button KEY1 in the signal selection section to delegate the key control section to keyer 1, then hold down the KEY 1 button and press the required cross-point button in the K row or in the auxiliary bus bank.

Modifying the key edge

Use the following procedure to modify the key edge, for example adding a border to the M/E key 1.

1 In the M/E KEY 1 menu, select item 3 (EDGE).

The EDGE menu appears.



Function key indications in the EDGE menu

2 Press one of F1 through F5 to select the edge type.

You can also use the BORD, DROP BORD, SHDW and OUTLINE buttons in the key control section.

F1 (NORMAL): unmodified edge.
F2 (BORDER): apply a border.
F3 (DROP BORDER): apply a drop border.
F4 (SHADOW): apply a shadow.
F5 (OUTLINE): use the outline function.

If you selected F1 (NORMAL), go to step **5**.

3 Adjust the parameter settings as necessary.
When you selected border, drop border or shadow in step **2**, when F9 (MATTE) is on (a color matte is selected as the edge fill), you can adjust the parameters for matte 1 regardless of whether the color mix function is on or off.

When applying a border:

Knob	Parameter	Setting
1	Width	Set width (0 to 4; for a pattern key: 0.00 to 100.00)
2	Position [a)]	Set position (0 to 8) [b)]
4	Density	Set density (0.00 to 100.00)
1	Luminance	Set luminance (0.00 to 100.00)
2	Saturation	Set saturation (0.00 to 100.00)
3	Hue	Set hue (0.00 to 359.99)
4	Density	Set density (0.00 to 100.00)

a) For a pattern key the Position setting is not available.
b) For the relationship between the code numbers and the position, see page 4-31.

(Continued)

When applying a drop border or shadow:

Knob	Parameter	Setting
1	Width	Set width (in "4H DROP ON" a) mode: 0 to 4; in "4H DROP OFF" a) mode: 0 to 8) a)
2	Position	Set position (in "4H DROP ON" a) mode: 1 to 8 b); in "4H DROP OFF" a) mode: 1 to 3) b)
4	Density	Set density (0.00 to 100.00)
1	Luminance	Set luminance (0.00 to 100.00)
2	Saturation	Set saturation (0.00 to 100.00)
3	Hue	Set hue (0.00 to 359.99)
4	Density	Set density (0.00 to 100.00)

a) For the details of "4H DROP ON" and "4H DROP OFF" mode, see "Edge types and key fill/key source positions" *(page 4-43)*.
b) For the relationship between code numbers and positions, see page 4-32.

When using the outline function:

Knob	Parameter	Setting
1	Width	Set width (0 to 4; for a pattern key: 0.00 to 100.00)
2	Position a)	Set position (0 to 8) b)
4	Density	Set density (0.00 to 100.00)

a) For a pattern key the Position setting is not available.
b) For the relationship between the code numbers and positions, see page 4-32.

4 Press F8 or F9 to select the edge fill signal and set the parameter.

F8 (UTILITY BUS): external signal selected on the utility bus.
To select the signal on the M/E utility bus, hold down the M/E UTIL button in the auxiliary delegation section, and press the cross-point button assigned to the required signal.
F9 (MATTE): special-purpose color matte for edge fill.

Knob	Parameter	Setting
1	Luminance	Set luminance (0.00 to 100.00)
2	Saturation	Set saturation (0.00 to 100.00)
3	Hue	Set hue (0.00 to 359.99)

When you selected F8, after selecting the external signal go to step **5**.

5 To soften the edge, press F7 (SOFT EDGE), turning it on, and adjust the degree of softness.

Knob	Parameter	Setting
1	Softness	Set the degree of edge softness (0.00 to 100.00)

Note

When you selected a “normal” edge, drop border, or shadow in “4H DROP OFF” mode, the edge softening function is not available.

For details of “4H DROP OFF” mode, see “Edge types and key fill/key source positions” (see below).

Edge types and key fill/key source positions

The edge modification functions have two modes: the “4H DROP ON” mode, in which the key fill/key source position moves down by four scan lines, and the “4H DROP OFF” mode, in which the key fill/key source position does not move down (with the exception of a border and an outline, for which the key fill/key source moves down by four scan lines irrespective of the modes).

- In the “4H DROP ON” mode, the width adjustment range for a drop border or shadow is narrower.
- In the “4H DROP OFF” mode, the width adjustment range for a drop border or shadow is wider.

Relation between edge type and key fill and key source positions

Edge type		Key source/fill position
Border or outline		Down four lines a)
Normal edge, drop border, or shadow	“4H DROP ON” mode	Down four lines
	“4H DROP OFF” mode	No movement

a) When the selected key type is a pattern key, the key fill position does not move down.

To toggle between “4H DROP ON” and “4H DROP OFF” modes, press F6 (4H DROP).

Masking

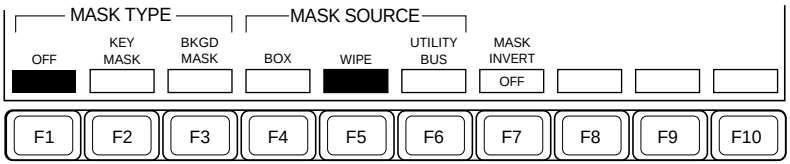
To mask unwanted portions or defects in the key or background, there are two masks you can use: the main mask and the subsidiary mask.
You can use as source signal the box generator built into the M/E or PGM/PST bank keyer, a wipe generator from each bank or an external video signal selected on the utility bus.

To use the mask

By way of example, the following procedure uses the mask on keyer 1 of the M/E bank.

1 In the M/E KEY 1 menu, select item 4 (MASK).

The MASK menu appears.



Function key indications in the MASK menu

2 Press F2 or F3, turning it on, to select the mask type.

F2 (KEY MASK): key masking
F3 (BKGD MASK): background masking

3 Press one of F4 to F6 to select the mask source.

F4 (BOX): rectangular mask generated by the internal box generator
F5 (WIPE): wipe pattern from the wipe generator
When you make this selection, make the wipe pattern selection and modifier settings in the M/E WIPE menu *(see page 4-54)*, then return to the M/E KEY 1 menu.
When you select a wipe pattern for the pattern key, the EDGE and DIRECTION modifier settings in the WIPE menu become invalid.
F6 (UTILITY BUS): external signal selected on the utility bus.
To select the signal on the M/E utility bus, hold down the M/E UTIL button in the auxiliary delegation section, and press the cross-point button assigned to the required signal.

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4 Adjust the mask source parameters.

When you have selected a box mask:

Knob	Parameter	Setting
1	Top	Top edge position of box (0.00 to 100.00)
2	Left	Left edge position of box (0.00 to 100.00)
3	Right	Right edge position of box (0.00 to 100.00)
4	Bottom	Bottom edge position of box (0.00 to 100.00)
1	Softness	Set the degree of edge softness (0.00 to 100.00)

When you have selected a wipe pattern:

Knob	Parameter	Setting
1	Size	Set pattern size (0.00 to 100.00)
2	Softness	Set the degree of edge softness (0.00 to 100.00)

When you have selected an external video signal:

Knob	Parameter	Setting
1	Clip	Set clip level on the mask signal (0.00 to 100.00)
2	Softness	Set the degree of edge softness (0.00 to 100.00)

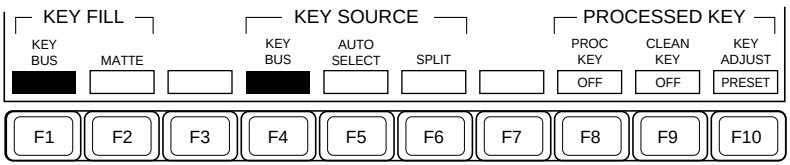
5 To invert the sense of the mask source, press F7 (MASK INVERT), turning it on.

Using the processed key function

Use the following procedure to use a processed key on keyer 1 of the M/E bank.

1 In the M/E KEY 1 menu, select item 2 (FILL/SOURCE).

The FILL/SOURCE menu appears.



Function key indications in the FILL/SOURCE menu

(Continued)

2 Select the key fill and key source signals.

For details, see the section "Selecting the key source and key fill" (page 4-39).

3 In the FILL/SOURCE menu, press F8 (PROC KEY), turning it on.

4 On the DME, set up the required processing to be carried out on the key fill signal (PROCV) and key source signal (PROCK).

- On the DME, make the settings so that the PROCK signal level is not affected by a DME external key signal (so that the through output is obtained from the keyer for the external key).
- In the DME IN/OUT menu, set the front and back key modes to "External", and set both clip and gain for the external key signal to 0.00.

For details of the operations on the DME, refer to the HZS-7040 User's Guide Volume 2, Volume 3, or HZDM-7020 User's Guide.

5 To carry out clean key processing on the return signals (DMEV and DMEK) from the DME, press F9 (CLEAN KEY), turning it on.

6 Press F10 (KEY ADJUST) to select the method of adjustment of the DME return signals. Pressing F10 toggles between PRESET and VARIABLE.

PRESET: the clip level and gain are automatically adjusted to preset values suitable for using the output key signal from the DIGITAL OUTPUTS connectors of the external DME unit.

VARIABLE: selecting this allows manual adjustment of the clip level and gain.

Knob	Parameter	Setting
1	Clip	Set clip level on the key signal (0.00 to 100.00)
2	Gain	Set key gain (0.00 to 100.00)

Notes

- It is impossible to use the processed key function on the PGM/PST bank.
- When using the HDME-7000 Digital Multi Effects, the processed key for the M/E bank uses the following of the two channels selected by the DME IF item in the SETUP menu *(see page 13-31)*: for keyer 1, odd-numbered channels (DME 1), and for keyer 2, even-numbered channels (DME 2).
- For the M/E bank, if a DME wipe and processed key use the same DME, the one which was selected first takes precedence.
- Even if two DME channels can be used on the M/E bank, it is not possible to set the processed key function to ON for keyers 1 and 2 simultaneously.
- When only one DME channel can be used with the M/E bank, either of keyers 1 and 2 can be used for a processed key, but simultaneous use on both keyers is not possible.

DSK snapshot operations

Using the DSK snapshot function, you can save all of the key settings, except the key on or off state, in a dedicated register. Recalling a snapshot restores all the settings instantly. There are four snapshot registers per downstream keyer.

To save a DSK snapshot

For example, to save the state of downstream keyer 1, hold down the STORE/LEARN button in the numeric keypad section, and press one of the key snapshot buttons 1 to 4 in the DSK control section.

This saves a snapshot in the register corresponding to the number of the button pressed.

Note

If the key snapshot button is lit with the STORE/LEARN button in the numeric keypad section held down, this indicates that there is already a snapshot saved in this particular register. If with the STORE/LEARN button held down you press a key snapshot button which is lit, this overwrites the previous information in the register.

To recall a DSK snapshot

Press the DSK snapshot button (1 to 4) in the DSK control section for the required snapshot.

Wipes

This section describes the setting operations for carrying out wipes.

Overview

A wipe is a transition in which the old video is replaced by the new video according to the progressively changing shape of a wipe pattern.
A wipe on the M/E bank is called an M/E wipe, and a wipe on the PGM/PST bank is called a PGM/PST wipe. Again, a wipe which forms a transition between two backgrounds is called a background wipe, and a wipe which inserts or removes a key is called a key wipe.
M/E wipes and PGM/PST wipes each use the signals produced by dedicated wipe generators.

Wipe patterns

You can select a wipe pattern from the selection displayed in a menu.
The direction in which a wipe proceeds is indicated by the pattern: at an intermediate stage of the transition, the white portion represents the old video, and the black portion the new video. Alternatively, arrows indicate the direction in which some wipe patterns change. *(See the Appendix "Wipe Patterns" (page A-2)).*

The wipe patterns may be grouped together under the headings below.

Standard wipes: Basic wipe patterns, using straight lines and circles to divide the old video from the new.
Enhanced wipes: More complex shapes such as hearts and stars.
Mosaic wipes: Wipes dividing the image into a mosaic of small shapes.
Diamond dust: An effect like a scatter of small particles.
This appears in the list of wipe patterns as "DIAMOND DUST". By adjusting the parameters, you can change the size of the particles and the rate of twinkling.

Pattern mix

This refers to a combination of two different wipe patterns (referred to as the "main" pattern and the "subsidiary" pattern) selected from the standard wipes, enhanced wipes and mosaic wipes.

The following table shows whether you can use a particular combination of wipe patterns with the pattern mix function. The numbers are the pattern numbers.

Wipe pattern used as the subsidiary pattern / Wipe pattern used as the main pattern		Standard wipes		Enhanced wipes	Mosaic wipes	Diamond dust
		1-20, 22	21, 23, 24	26, 27	200-202, 206, 210, 270-272	274
Standard wipes	1-20, 22	No	No	No	No	Yes
	21, 23, 24	No	Yes	No	No	Yes
Enhanced wipes	26, 27	No	Yes	No	No	Yes
Mosaic wipes	200-202, 206, 210, 270-272	Yes	Yes	No	No	Yes
Diamond dust wipe	274	Yes	Yes	Yes	Yes	No

Main and subsidiary modifier link function

When carrying out a pattern mix, you can link the modifier settings for the main and subsidiary patterns. This function has two modes, as follows.

"FULL LINK" mode: All modifier settings for the main and subsidiary patterns are the same. Changing the modifier settings for either pattern automatically changes the settings for the other.

"SEMI LINK" mode: The modifier parameter values for the main and subsidiary patterns are linked, but each modifier can be switched on or off independently for the two patterns. If the parameter values of a particular modifier for the two patterns are different when you select this function, then the difference between the two values is preserved, so that changing the value for one pattern changes the value for the other pattern by the same amount.

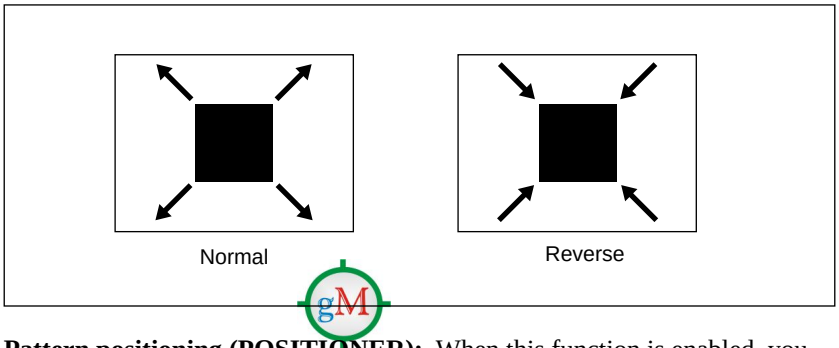
Note

When having carried out a pattern mix you execute a wipe, set the modifier link function to the "FULL LINK" mode. If this function is set to "OFF", or to the "SEMI LINK" mode, the desired video effect may not be obtained at the start or finish point of the transition.

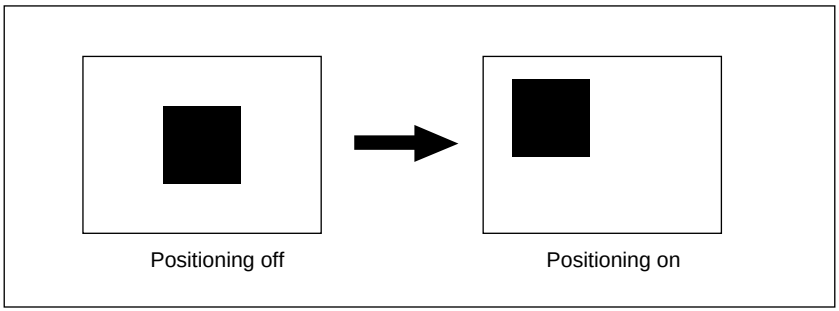
Modifying the wipe pattern

You can modify wipe patterns in the following ways. The block-capital expressions in parenthesis show how the modification is indicated on the menu screen.

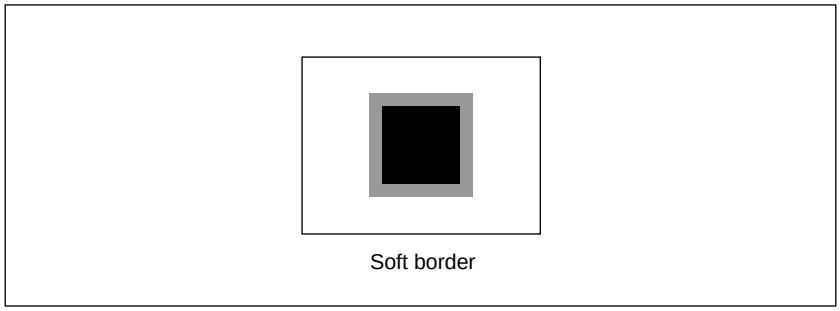
Wipe direction (DIRECTION): The wipe can proceed in the forward (“normal”) direction, or the reverse direction. There is also an alternating option, in which the wipe direction reverses each time it is executed.



Pattern positioning (POSITIONER): When this function is enabled, you can alter the position of the pattern in video space.

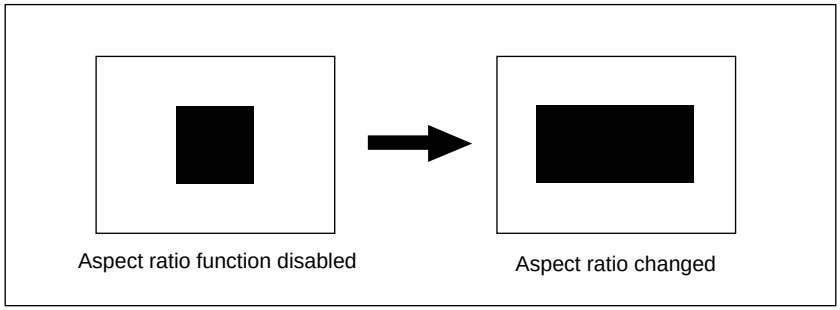


Edge modifications (EDGE): You can apply a border to the edge, or soften the edge. It is also possible to soften the applied border (soft border function).
These modifications are not available for the downstream keyer.

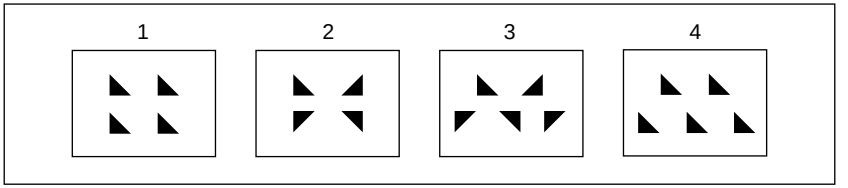


When you select a border or soft border, the signal which fills these border portions is termed edge fill.
For the edge fill signal of an M/E wipe, you can select either the special-purpose color matte generator, or the external video signal on the utility bus.

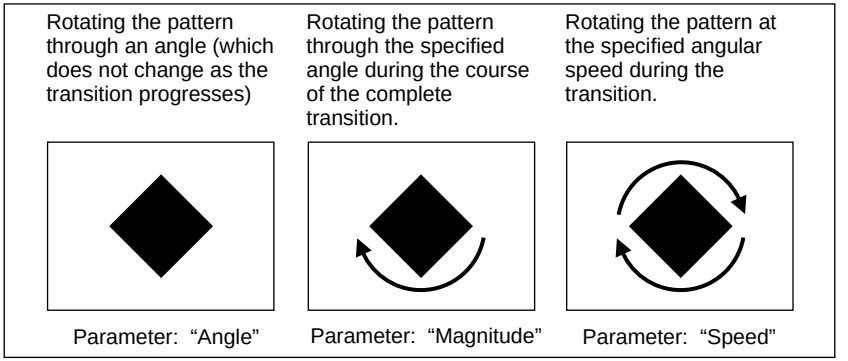
Changing the aspect ratio (ASPECT): This allows you to vary the aspect ratio of the pattern.



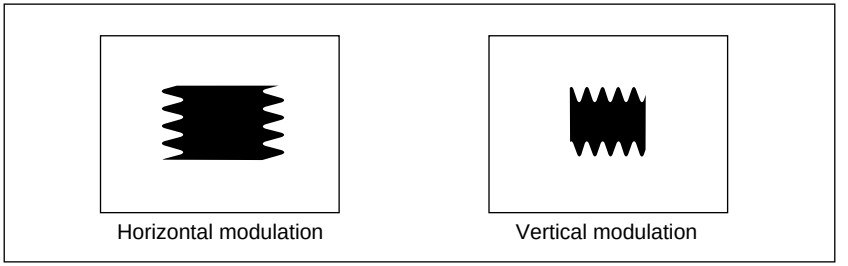
Replicated patterns (MULTI): This tiles the video space with multiple copies of the pattern, with a maximum of 32 copies in both horizontal and vertical directions. There are four different arrangements for the tiling (1 to 4).



Pattern rotation (ROTATION): This rotates the pattern, in any of three ways. These are shown in the following figure, along with the names of the parameters used to control them.


Rotating the pattern through an angle (which does not change as the transition progresses)
Rotating the pattern through the specified angle during the course of the complete transition.
Rotating the pattern at the specified angular speed during the transition.
Parameter: “Angle”
Parameter: “Magnitude”
Parameter: “Speed”

Modulation (H MODULATION and V MODULATION): This modulates the signal with a sine wave, applying a wavy effect either vertically or horizontally.



Combinations of patterns and modifiers

Depending on the pattern you have selected, not all modifiers may be usable. The following table shows which modification settings can be applied to which wipe patterns, with the wipe patterns arranged in groups by their numbers.

Pattern type	Wipe pattern number	Wipe direction	Pattern positioning [a]	Edge modifications	Aspect ratio [a]	Replicated patterns [a]	Pattern rotation [a]	Modulation [a]
Standard wipes	1-8	Yes	No	Yes	No	Yes	Yes	Yes
	17, 18	Yes	Yes	Yes	No	Yes	Yes	Yes
	9-16, 19, 20	Yes	No	Yes	Yes	Yes	Yes	Yes
	21-24	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Enhanced wipes	26, 27	Yes	No	Yes	No	No	No	Yes
Mosaic wipes	200-202, 206, 210, 270-272							
Diamond dust wipe	274	Yes	No	Yes	No	No	No	No

a) For an M/E wipe, you can apply these modifiers independently to the main and subsidiary patterns.

Basic Operation for Wipe Settings

Most wipe settings are carried out in a dedicated menu for the bank concerned.

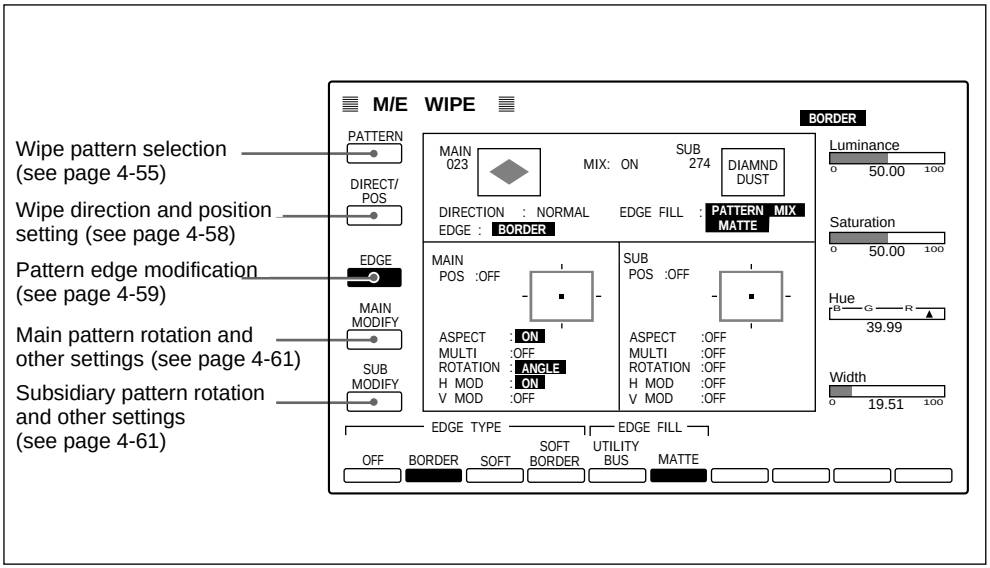
This section describes the basic operations for wipe settings.

To access the wipe setting menus

For example, to access the M/E WIPE menu, use any of the following operations:

- Press the WIPE top menu button in the M/E group of the menu control section.
- Press the WIPE button in the transition control section of the M/E bank twice in rapid succession.

After any of these operations, the M/E WIPE menu shown below appears. See the page numbers indicated in parenthesis for more details of the settings.



Example M/E WIPE menu display

The PGM/PST WIPE menus are similar in appearance.

The following description always takes the M/E WIPE menu as an example for basic wipe setting operations.

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Selecting the wipe pattern

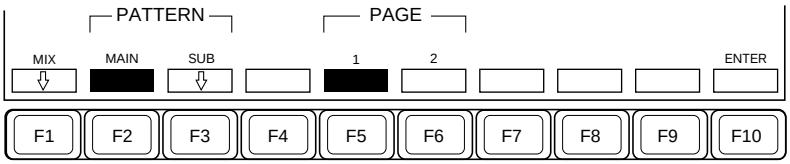
Move the cursor to select the required wipe pattern from those displayed on the menu screen. The wipe pattern display comprises two pages. Alternatively, you can enter the wipe pattern number directly using the numeric keypad.

For details of input from the numeric keypad, see page 4-57.

To select the wipe pattern for the M/E bank, use the following procedure.

1 In the M/E WIPE menu, select item 1 (PATTERN).

The PATTERN menu appears, and you can now select the main pattern.



Function key indications in the PATTERN menu

2 Press F5 (1) or F6 (2), turning it on, to display page 1 or page 2 of the wipe pattern display.

3 Use the cursor keys (↑ ↓ ← →) to select the required pattern.

4 Press F10 (ENTER).

The pattern you have selected appears on the screen in the “MAIN” area.

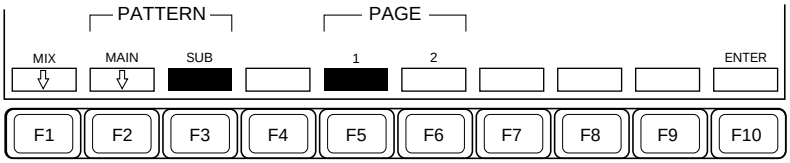
- If you are not going to use a pattern mix, this completes the wipe pattern selection.
- If you are going to use a pattern mix, continue with the procedure in the next section.

Combining two wipe patterns in a pattern mix

To combine the main pattern with the subsidiary pattern in a pattern mix, use the following procedure.

1 In the PATTERN menu, press F3 (SUB), turning it on.

You can now select the subsidiary pattern.



Function key indications in the PATTERN menu (after pressing F3)

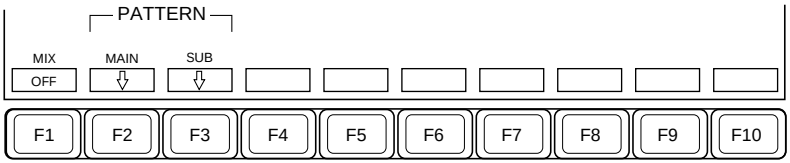
2 Press F5 (1) or F6 (2), turning it on, to display page 1 or page 2 of the wipe pattern display.

3 Use the cursor keys (↑ ↓ ← →) to select the required pattern, then press F10 (ENTER).

The pattern you have selected appears on the screen in the “SUB” area.

4 Press F1 (MIX).

The function key indications change as follows.



Function key indications in the PATTERN menu (after pressing F1)

5 Press F1 (MIX) once again, turning it on.

The main and subsidiary patterns are now combined, and function key indications for F5 to F7 now appear.

6 Press one of F5 to F7, turning it on, to make the main and subsidiary modifier link function setting.

F5 (OFF): Do not use the link function.
F6 (SEMI): Use the link function in "SEMI LINK" mode
F7 (FULL): Use the link function in "FULL LINK" mode

Note

When carrying out a wipe, turn F7 (FULL) on.

7 If necessary, adjust the "Mix" parameter.

Knob	Parameter	Setting
1	Mix	Degree of combination of the two patterns (0.00 to 100.00)

When you have selected diamond dust (pattern 274):
In this case you can adjust the twinkling rate.

Knob	Parameter	Setting
4	Flash Rate	Twinkling rate of diamond dust (0.00 to 100.00)

Selecting a wipe pattern using the numeric keypad

To select a pattern by number using the numeric keypad, use the following procedure.
To check pattern numbers, consult the Appendix "Wipe Patterns" *(page A-2)*.

1 In the PATTERN menu, select F2 (MAIN) or F3 (SUB).

2 Enter the number of the required pattern, using the numeric keypad, then press the ENTER button.

The newly selected pattern now appears on the screen in the "MAIN" or "SUB" area.

Applying wipe modifiers

You can modify wipe patterns, for example to reverse the wipe direction, or change the position of the pattern. Note, however, that depending on the pattern you have selected, not all modifiers may be usable.

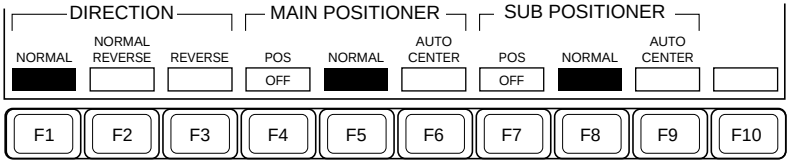
For details of possible combinations of wipe patterns and modifiers, see the table on page 4-53.

To select the wipe direction
To position the pattern

To apply these modifiers, use the following procedure.

1 In the M/E WIPE menu, select item 2 (DIRECT/POS).

The DIRECT/POS menu appears.



Function key indications in the DIRECT/POS menu

2 To specify the wipe direction, press one of F1 through F3, turning it on.

F1 (NORMAL): Carry out the wipe in the forward direction.
F2 (NORMAL/REVERSE): Carry out alternate wipes in opposite directions.
F3 (REVERSE): Carry out the wipe in the reverse direction.

3 To position a pattern, press F4 (POS) for the main pattern, or F7 (POS) for the subsidiary pattern, turning it on, then adjust the parameters.

Knob	Parameter	Setting
1	H Pos	Set the horizontal position of the pattern (–50.00 to +50.00)
2	V Pos	Set the vertical position of the pattern (–50.00 to +50.00)

4 Press F5 or F6 (for the main pattern) or F8 or F9 (for the subsidiary pattern) to select whether or not the pattern moves toward the center as the transition progresses.

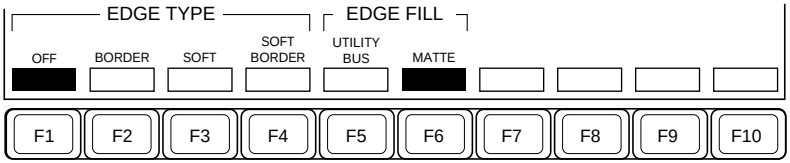
F5/F8 (NORMAL): The wipe pattern center is stationary throughout the transition.
F6/F9 (AUTO CENTER): As the transition progresses, the wipe pattern center moves toward the center of the video space.

To modify the edge of the wipe pattern

To modify the edge of the wipe pattern, use the following procedure.

1 In the M/E WIPE menu, select item 3 (EDGE).

The EDGE menu appears.



Function key indications in the EDGE menu

2 Press one of F1 through F4 to select the edge type.

F1 (OFF): unmodified edge.
F2 (BORDER): apply a border.
F3 (SOFT): soft edge.
F4 (SOFT BORDER): apply a soft border.

• If you are applying a border or soft border, go to step **4**.
• If you have selected a soft edge, go to step **3**.

(Continued)

3 Adjust the parameter settings as necessary.

When you selected border or soft border in step **2**, when F6 (MATTE) is on (a color matte is selected as the edge fill), you can adjust the parameters for matte.

When applying a border:

Knob	Parameter	Setting
1	Luminance	Set luminance (0.00 to 100.00)
2	Saturation	Set saturation (0.00 to 100.00)
3	Hue	Set hue (0.00 to 359.99)
4	Width	Set width (0.00 to 100.00)

When applying a soft edge:

Knob	Parameter	Setting
1	Softness	Set the degree of edge softness (0.00 to 100.00)

When applying a soft border:

Knob	Parameter	Setting
1	Luminance	Set luminance (0.00 to 100.00)
2	Saturation	Set saturation (0.00 to 100.00)
3	Hue	Set hue (0.00 to 359.99)
4	Width	Set width (0 to 4)
1	Inner Soft	Inner edge softness of the border (0.00 to 100.00)
2	Outer Soft	Outer edge softness of the border (0.00 to 100.00)
4	Width	Set width (0.00 to 100.00)

4 Press F5 or F6 to select the edge fill signal.

F5 (UTILITY BUS): external signal selected on the utility bus.
To select the signal on the M/E utility bus, hold down the M/E UTIL button in the auxiliary delegation section, and press the cross-point button assigned to the required signal.

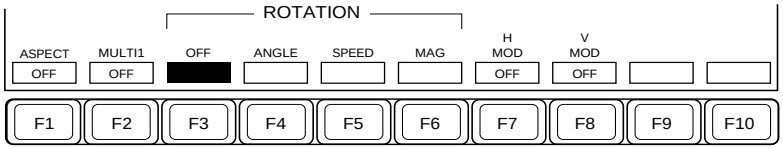
F6 (MATTE): pecial-purpose color matte for edge fill.

To change the aspect ratio of the wipe pattern
To replicate the wipe pattern
To rotate the wipe pattern
To apply a modulation to the edge of the wipe pattern

To apply these modifiers, use the following procedure.

1 • To apply the modifiers to the main pattern, in the M/E WIPE menu, select F4 (MAIN MODIFY).
• To apply the modifiers to the subsidiary pattern, in the M/E WIPE menu, select F5 (SUB MODIFY).

The MODIFY menu appears.



Function key indications in the MODIFY menu

2 Depending on the modifiers you wish to apply, press any of F1 through F8, turning them on, and adjust the parameters.

F1 (ASPECT): adjust the pattern aspect ratio.

Knob	Parameter	Setting
1	Aspect	Aspect ratio (0.00 to 100.00)

F2 (MULTI): use replicated patterns.

Knob	Parameter	Setting
1	H Multi	Number of pattern replications horizontally (1 to 63)
2	V Multi	Number of pattern replications vertically (1 to 63)
3	Shift	Replication layout (1 to 4) a)

a) For the layout codes (1 to 4) see page 4-52.

F3 (OFF): do not apply any of the rotation modifiers (ANGLE, SPEED, or MAGNITUDE).

(Continued)

F4 (ANGLE): rotate the pattern.

Knob	Parameter	Setting
1	Angle	Rotation angle (–50.00 to +50.00) (maximum one whole turn) a)

a) To avoid problems at the fader limits, depending on the angle, the pattern size is automatically corrected.

F5 (SPEED): rotate the pattern at a constant angular speed.

Knob	Parameter	Setting
1	Speed	Rotation speed (–50.00 to +50.00) a)

a) To avoid problems at the fader limits, the pattern size is automatically increased compared with the case in which the pattern does not rotate.

F6 (MAG): specify angle through which pattern turns through the course of the transition.

Knob	Parameter	Setting
1	Angle	Pattern orientation when the transition starts (–50.00 to +50.00)
2	Magnitude	Rotation through transition (–100.00 to +100.00) (maximum plus or minus two whole turns) a)

a) To avoid problems at the fader limits, depending on the angle when the transition completes, the pattern size is automatically corrected.

F7 (H MOD): modulate the pattern, giving a horizontal waviness to the edge.

Knob	Parameter	Setting
1	Amplitude	Set the modulation amplitude (0.00 to 100.00)
2	Frequency	Set the modulation frequency (0.00 to 100.00)
3	Speed	Set the modulation speed (–50.00 to +50.00)

F8 (V MOD): modulate the pattern, giving a vertical waviness to the edge.

Knob	Parameter	Setting
1	Amplitude	Set the modulation amplitude (0.00 to 100.00)
2	Frequency	Set the modulation frequency (0.00 to 100.00)
3	Speed	Set the modulation speed (–50.00 to +50.00)

Note

The F7 (H MOD) and F8 (V MOD) parameter settings are common to the main and subsidiary patterns. Therefore, changing the settings for one pattern automatically assigns the same values to the other pattern.

Resetting all wipe modifiers to the default settings

It is possible to reset all of the wipe modifiers for the currently selected wipe pattern to their default settings.

For example, to do this for the wipe pattern selected on the M/E bank, in the menu control section, hold down the WIPE top menu button in the M/E group for about 2 or 3 seconds.
The default settings can be determined using a setup menu operation.

For details of the default settings, see the section on the BACKUP menu (page 13-15).

DME Wipes

This section describes the basic operations and settings for DME wipes.

Overview

By mounting the HKDS-7061 Video Modifier Board and the HKDS-7071 Digital Multi Effects Board (internal DME) or connecting the HDME-7000 Digital Multi Effects (external DME) in/to the switcher, it is possible to carry out wipe transitions using the DME effects. This function is called "DME Wipe" (DME LINK™), and a pattern used for the function is called a "DME wipe pattern".

To use the internal/external DME

Option

To use the DME wipe function, the HKDS-7061 Video Modifier Board and the HKDS-7071 Digital Multi Effects Board must be mounted or the HDME-7000 Digital Multi Effects must be connected in/to the switcher.

Signal path for a DME wipe

For a DME wipe on each bank, the output buses for the signals to the DME uses the auxiliary buses as follows:

When using the internal HKDS-7071 and HKDS-7061:

AUX1: DME1 VIDEO
AUX2: DME1 KEY
AUX3: DME1 EXTERNAL VIDEO

When using the external HDME-7000:

The auxiliary buses which you specified in a setup menu are used. The output signals from the DME (DMEV, DMEK) are input to the switcher through cross-point button columns specified in the same setup menu.

Note

You cannot use the internal DME and external DME at the same time.

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DME wipe patterns

The DME wipe patterns used in the HDS-7150 can be divided into the following groups.

For details of the patterns in each group and impressions of the wipes, see the Appendix "DME Wipe Patterns" (page A-4).

The following descriptions apply when the wipe direction is "Normal" (i.e. forward).

Slide: The new video slides in over the old video.

Split: The old video splits, and the new video appears in the gap.

Squeeze: The new video appears squeezed over the old video, and progressively expands to cover it.

Door: The new video moves like a door closing, and progressively covers the old video.

Page turn: The old video moves like a page turning, and the new video appears behind it.

Page roll: The old video rolls up like a scroll, and the new video appears behind it. This is a type of page turn.

User programmable DME: This carries out a DME wipe using keyframes built on the DME. The pattern numbers which can be used and the DME keyframe effect numbers are related as shown in the following table.

Pattern number	Effect number
1901	1
1902	2
⋮	⋮
1911	11
1912	12

Pattern number	Effect number
1951	51
⋮	⋮
1956	56
1961	61
⋮	⋮
1966	66

For notes on how to build a keyframe effect using the user programmable DME function, see page 4-77.

DME wipe modes

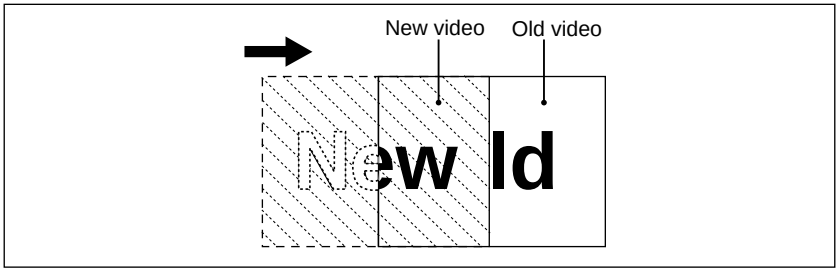
There are two DME wipe operating modes: single mode, using one channel of the DME, and dual mode, using two channels of the DME.

Note

For a dual mode DME wipe, the HDME-7000 must be connected to the switcher.

Single mode

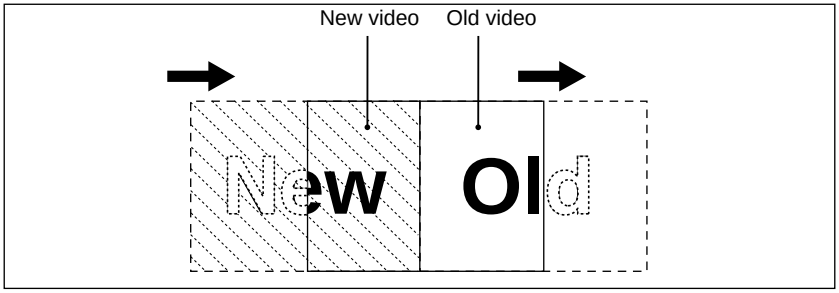
The DME is dedicated to manipulating the background, key 1, key 2, or one of the four downstream keys.
For example, using a pattern from the slide group, the video changes as shown in the following figure.



A slide effect in single mode

Dual mode

By means of setup menu operations, it is possible to use dual mode only for a background transition on an M/E bank to which the two units are connected.
For a dual mode DME wipe, you can use the two channels of HDME-7000 connected to the M/E bank to apply the DME effect to both the old video and the new video.
For example, using a pattern from the slide group, the video changes as shown in the following figure.



A slide effect in dual mode

Modifying a DME wipe

You can execute a transition with the following modifications applied to the DME wipe.

Wipe direction (DIRECTION): The wipe can proceed in the forward direction (NORMAL), or reverse direction (REVERSE), or in alternating directions for each execution (NORMAL/REVERSE).

Note

For a key transition, the forward and reverse executions may not be the same as for a background transition. The direction setting has no effect on a user programmable DME effect.

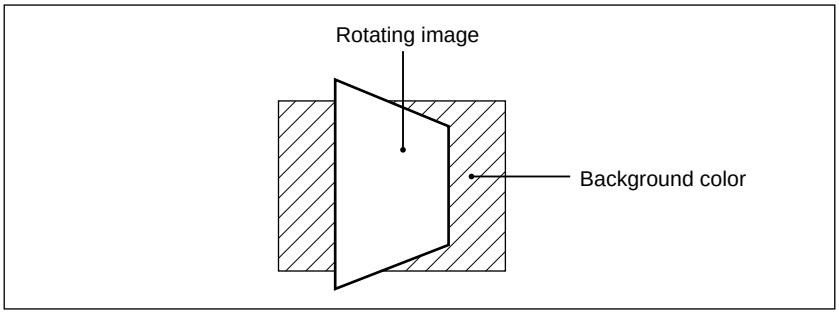
Edge modifications (BORDER): You can apply a border or soft border to the edge, or soften the edge. These modifications are not available for a user programmable DME effect.

Pattern positioning (POSITIONER): You can use this modifier for the squeeze pattern only. As the transition proceeds, the center of the pattern moves automatically from its original position toward the center of video space. In other words, the effect is similar to the “AUTO CENTER” setting for an ordinary wipe.

Adjustments on the DME

- In a DME wipe, part of the image may be filled by the DME background color. For example, in a horizontally or vertically opening door pattern (or), the hatched portions in the figure below are filled by the DME background color. In this case, select the DME background color using the control panel for the DME.
  Note that on the HDME-7000, for the background source you can select "MIX COLOR" or "EXT VIDEO".
- When you are using the DME for key 1 or key 2 on M/E bank, you can also use the crop adjustments on the control panel for the DME.
- When applying a border, you can also adjust the border width on the control panel of the DME.

For details of the operations on the DME, refer to the HZS-7040 User's Guide Volume 2, Volume 3, or HZDM-7020 User's Guide.



DME image and background color in a DME door wipe

Relationship between DME wipes and other effects

This section describes the relationship between DME wipes and other effects.

Relation with ordinary wipes

- Since a DME wipe does not use the wipe generator built into the switcher, you can use a pattern produced by the wipe generator as the source for a pattern key or mask, even while the DME wipe is executing.
- It is not possible to use a DME wipe pattern as the source for a pattern key or mask.

Relation with processed keys

On each, if you are using the same DME for both a DME wipe and a processed key, the first selected function takes precedence.

Basic Operation for DME Wipes

Using a DME wipe for a background transition

To use a DME wipe for a background transition, use the following procedure.

1 Select the background video for before the transition with the required A-bus cross-point button.

2 In the transition control section, press the BKGD next transition selection button, turning it on.

Note

Do not turn on any other next transition selection button.

3 In the transition control section, select DME wipe as the transition type.

When specifying single mode, press either DME 1 or DME 2 transition type selection button, turning it on, and when specifying dual mode, press the both buttons simultaneously, turning them on.

4 Select the DME wipe pattern, and if required adjust the parameters.

For details of this operation, see the section "DME Wipe Settings" (page 4-71).

5 Use the fader lever or AUTO TRANS button to carry out the transition.

Using a DME wipe for a key transition

To use a DME wipe for a key transition, use the following procedure.

Notes

- It is impossible to use a DME wipe for a key transition on the PGM/PST bank.
- You cannot use a DME wipe for a transition when using color backgrounds.

1 In the transition control section, press the next transition selection button KEY 1 or KEY 2, turning it on to select the key for the next transition.

2 When inserting the key, select the key type, key fill, and key source, and make any necessary settings such as key modifications.

Note

When inserting an M/E key, set the key source selection to “AUTO SELECT” or “SPLIT” *(see page 4-40)*. If you set it to “KEY BUS”, the key source signal will not be transmitted correctly to the DME, and therefore the key transition will not be executed correctly.

3 In the transition control section, press the transition type selection button DME 1 or DME 2, turning it on, to select DME wipe as the transition type.

Note

For an M/E background DME wipe, you can select dual mode, but it is not possible to select dual mode for a key transition.

4 Select the DME wipe pattern, and if required adjust the parameters.

For details of this operation, see the next section “DME Wipe Settings”.

5 Use the fader lever or AUTO TRANS button in the transition control section to carry out the transition.

DME Wipe Settings

DME wipe settings are carried out in a dedicated menu for the switcher bank used.

DME wipe setting menus

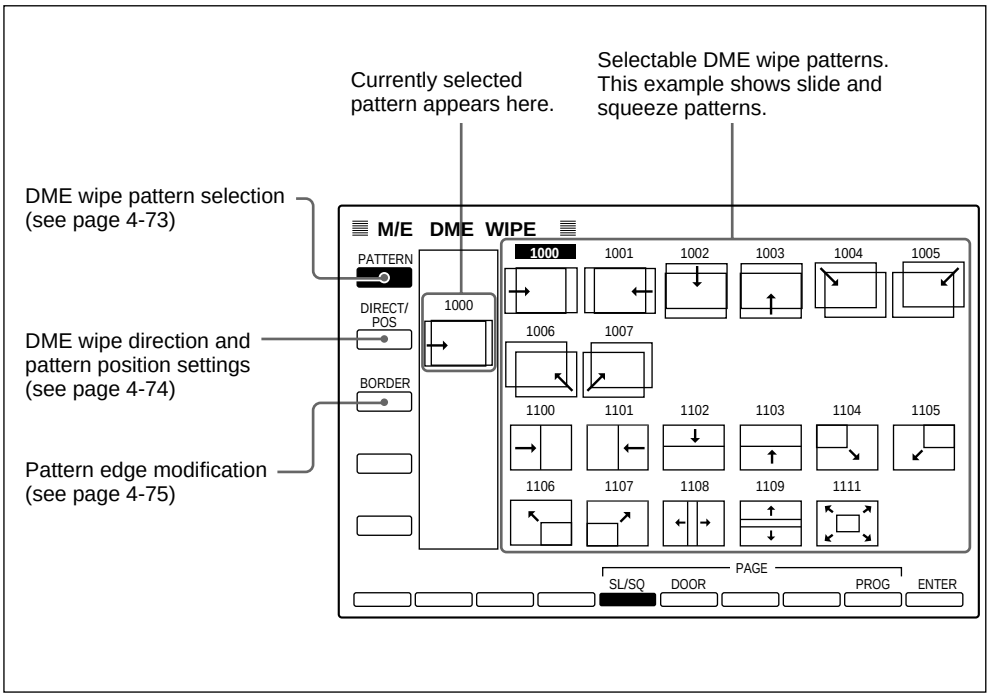
The DME wipe setting menus are listed in the following table.

Switcher bank	Menu
M/E bank	M/E DME WIPE
PGM/PST bank	PGM/PST DME WIPE

To access an M/E bank DME wipe setting menu

For example, to access the M/E DME WIPE menu, use either of the following operations:

- Press the DME top menu button in the M/E group of the menu control section.
- Press either DME 1 or DME 2 button in the transition control section of the M/E bank twice in rapid succession.



Example M/E DME WIPE menu display

The PGM/PST DME WIPE menus are similar in appearance.

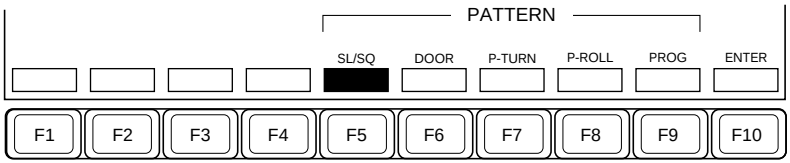
The following description always takes the M/E DME WIPE menu as an example for basic DME wipe setting operations.

Selecting the DME wipe pattern

To select the DME wipe pattern, use the following procedure.

1 In the M/E DME WIPE menu, select item 1 (PATTERN).

The PATTERN menu appears, and you can now select the pattern.



Function key indications in the PATTERN menu

2 Press one of F5 to F9 to select the required group of patterns.

F5 (SL/SQ): slides and squeezes
F6 (DOOR): door effects
F7 (P-TURN): page turn
F8 (P-ROLL): page roll (scroll)
F9 (PROG): user programmable DME effects

The patterns from the group you have selected appear.

3 Use the cursor movement buttons (↑ ↓ ← →) to align the cursor with the required pattern number.

4 Press F10 (ENTER), or press the ENTER button on the numeric keypad.

The selected pattern now appears in the current pattern box.

Applying DME wipe modifiers

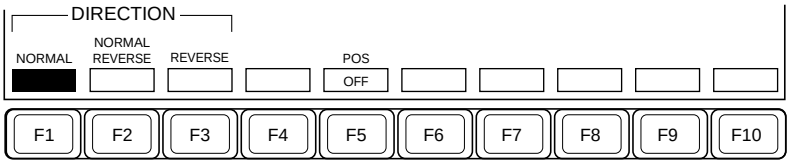
There are three modifiers you can apply to a DME wipe: the direction, position and edge modifiers.
Note that the direction setting has no effect on a user programmable DME effect.
Additionally, the position modifications can only be applied to the pattern in the squeeze group.

To select the wipe direction
To position the pattern

To apply these modifiers, use the following procedure.

1 Depending on the bank on which you are carrying out the transition, in the M/E DME WIPE menu, select item 2 (DIRECT/POS).

The DIRECT/POS menu appears.



Function key indications in the DIRECT/POS menu

2 To specify the wipe direction, press one of F1 through F3, turning it on. (For a downstream keyer wipe, you can also use the NORM, NORM/REV and REV buttons in the downstream keyer control section.)

F1 (NORMAL): Carry out the wipe in the forward direction.
F2 (NORMAL/REVERSE): Carry out alternate wipes in opposite directions.
F3 (REVERSE): Carry out the wipe in the reverse direction.

Note

For a key transition, the forward and reverse executions may not be the same as for a background transition. The direction setting has no effect on a user programmable DME effect.

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3 When using the pattern from the squeeze group, to apply the "AUTO ENTER" positioning effect, press F5 (POS), turning it on, then adjust the initial position of the pattern.

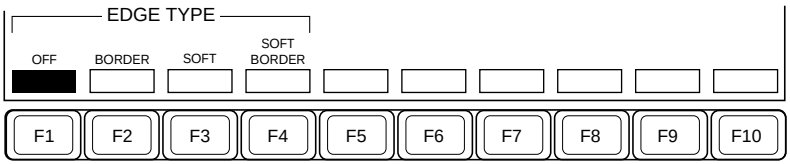
Knob	Parameter	Setting
1	H Pos	Set the horizontal position of the pattern (–50.00 to +50.00)
2	V Pos	Set the vertical position of the pattern (–50.00 to +50.00)

To modify the edge of the wipe pattern

To modify the edge of the DME wipe pattern, use the following procedure. Note that it is not possible to use the border function on a user programmable DME effect or for a key transition.

1 Depending on the bank on which you are carrying out the transition, in the M/E DME WIPE menu, select item 3 (BORDER).

The BORDER menu appears.



Function key indications in the BORDER menu

2 Press one of F1 through F4, and adjust the parameter settings as necessary.

F1 (OFF): unmodified edge.

F2 (BORDER): apply a border. A dedicated color matte is used as the edge fill signal.

Knob	Parameter	Setting
1	Luminance	Set luminance (0.00 to 100.00)
2	Saturation	Set saturation (0.00 to 100.00)
3	Hue	Set hue (0.00 to 359.99)
4	Width	Set width (0.00 to 100.00)

(Continued)

F3 (SOFT): soft edge.

Knob	Parameter	Setting
1	Softness	Set the degree of edge softness (0.00 to 100.00)

F4 (SOFT BORDER): apply a soft border.

Knob	Parameter	Setting
1	Luminance	Set luminance (0.00 to 100.00)
2	Saturation	Set saturation (0.00 to 100.00)
3	Hue	Set hue (0.00 to 359.99)
4	Width	Set width (0.00 to 100.00)
1	Inner Soft	Inner edge softness of the border (0.00 to 100.00)
2	Outer Soft	Outer edge softness of the border (0.00 to 100.00)
4	Width	Set width (0.00 to 100.00)

Notes on Building a Keyframe Effect With User Programmable DME

A user programmable DME effect uses an effect built on the DME from keyframes as a transition on the switcher. To obtain the required transition effect, it is important to note the following points.

Global channel and DME keyframe effects

If the global (GLBL) channel has an effect with the same number as on the reference channel, executing a user DME will cause the effect on the global channel to be executed as well. When executing a user programmable DME effect, check for the presence of effects on the global channel.

Keyframe effects for pattern numbers 1901 to 1912

When using a keyframe effect for a background transition:

- For the initial keyframe, set the image size to full screen size.
- For the final keyframe, move the image off the screen, or reduce the size to zero, so that it cannot be seen on the screen.

Keyframe effect used for a key transition:

- For the initial keyframe, set the image size to full screen size, and arrange that it can be seen in the screen (“key on” state).
- For the final keyframe, move the image off the screen, or reduce the size to zero, so that it cannot be seen on the screen (“key off” state).

Color Backgrounds

This section describes the various settings which are possible for color backgrounds used on the M/E bank and PGM/PST bank.

Overview

Each bank has dedicated color matte generators for producing color backgrounds, which can then be used in creating video effects.
To select the output from a color matte generator on a particular bank, press the cross-point button in the column which has been allocated to the color background in a setup menu.

Color mix

Each bank color matte generator can produce two outputs (matte 1 and matte 2) simultaneously. Using either the special-purpose pattern generator or a pattern produced by the wipe generator on the bank, you can combine mattes 1 and 2 to form a color gradation on the border of the pattern. This is called a "color mix". If you do not use the color mix function, the matte 1 is always used as the output.

Note

In the AUX bus bank, you can select only the M/E color background.
You cannot select the PGM/PST color backgrounds.

Color Background Setting Operations

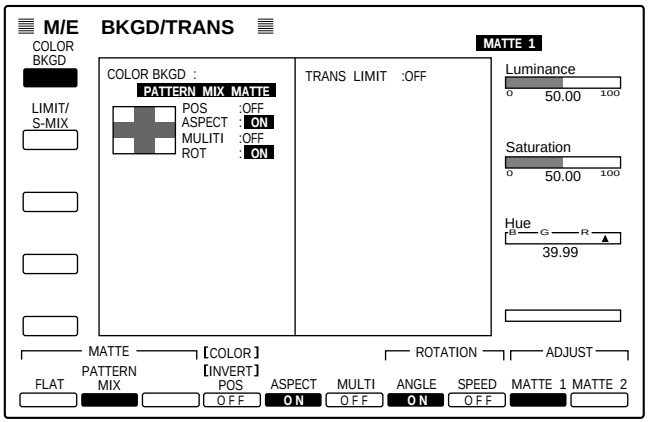
The color background settings are carried out in a dedicated color background setting menu for the bank concerned.

M/E bank color background settings

To access the M/E bank color background setting menus

For example, to access the M/E color background setting menu (COLOR BKGD), use either of the following operations:

- In the M/E bank, press the cross-point button to which the color background is assigned, twice in rapid succession.
- Press the BKGD/TRANS top menu button in the M/E group of the menu control section to display the BKGD/TRANS menu, then select item 1 (COLOR BKGD).



Example M/E COLOR BKGD menu display

To adjust matte 1 (when not using the color mix function)

In the COLOR BKGD menu, press F1 (FLAT), turning it on, and adjust the parameters.

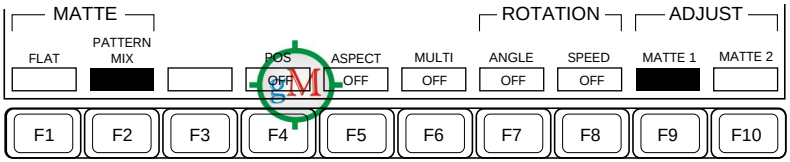
Knob	Parameter	Setting
1	Luminance	Set luminance (0.00 to 100.00)
2	Saturation	Set saturation (0.00 to 100.00)
3	Hue	Set hue (0.00 to 359.99)

To carry out a color mix

To carry out a color mix, use the following procedure.

1 In the COLOR BKGD menu, press F2 (PATTERN MIX), turning it on.

Function key indications appear for F3 through F10.



Function key indications in the EDGE MATTE menu (when F2 is set to ON)

2 Adjust the pattern parameters.

Knob	Parameter	Setting
1	Size	Set pattern size (0.00 to 100.00)
2	Softness	Set the degree of edge softness (0.00 to 100.00)
4	Pattern No.	Select pattern number (1 to 23) a)

a) The patterns are the same as wipe patterns 1 through 23. *(See the Appendix "Wipe Patterns" (page A-2)).*

3 Adjust the colors for mattes 1 and 2.
To adjust matte 1 press F9 (MATTE 1), and to adjust matte 2 press F10 (MATTE 2), turning the respective button on, then adjust the parameters.

Knob	Parameter	Setting
1	Luminance	Set luminance (0.00 to 100.00)
2	Saturation	Set saturation (0.00 to 100.00)
3	Hue	Set hue (0.00 to 359.99)

4 Press any of F4 through F8 as required, turning them on, to adjust the pattern modifiers.

F4 (POS): adjust the pattern position.

Knob	Parameter	Setting
1	H Pos	Horizontal position (–50.00 to +50.00)
2	V Pos	Vertical position (–50.00 to +50.00)

F5 (ASPECT): adjust the pattern aspect ratio.

Knob	Parameter	Setting
1	Aspect	Aspect ratio (0.00 to 100.00)

F6 (MULTI): use replicated patterns.

Knob	Parameter	Setting
1	H Multi	Number of pattern replications horizontally (1 to 63)
2	V Multi	Number of pattern replications vertically (1 to 63)
3	Shift	Replication layout (1 to 4) a)

a) For the layout codes (1 to 4) see page 4-52.

F7 (ANGLE): rotate the pattern.

Knob	Parameter	Setting
1	Angle	Rotation angle (–50.00 to +50.00)

F8 (SPEED): rotate the pattern at a constant angular speed.

Knob	Parameter	Setting
1	Speed	Rotation speed (–50.00 to +50.00)

5 To interchange matte 1 and matte 2, hold down the SHIFT button in the menu control section (changing the F4 indication to “COLOR INVERT”), and press F4 (COLOR INVERT), turning it on.

Status Display

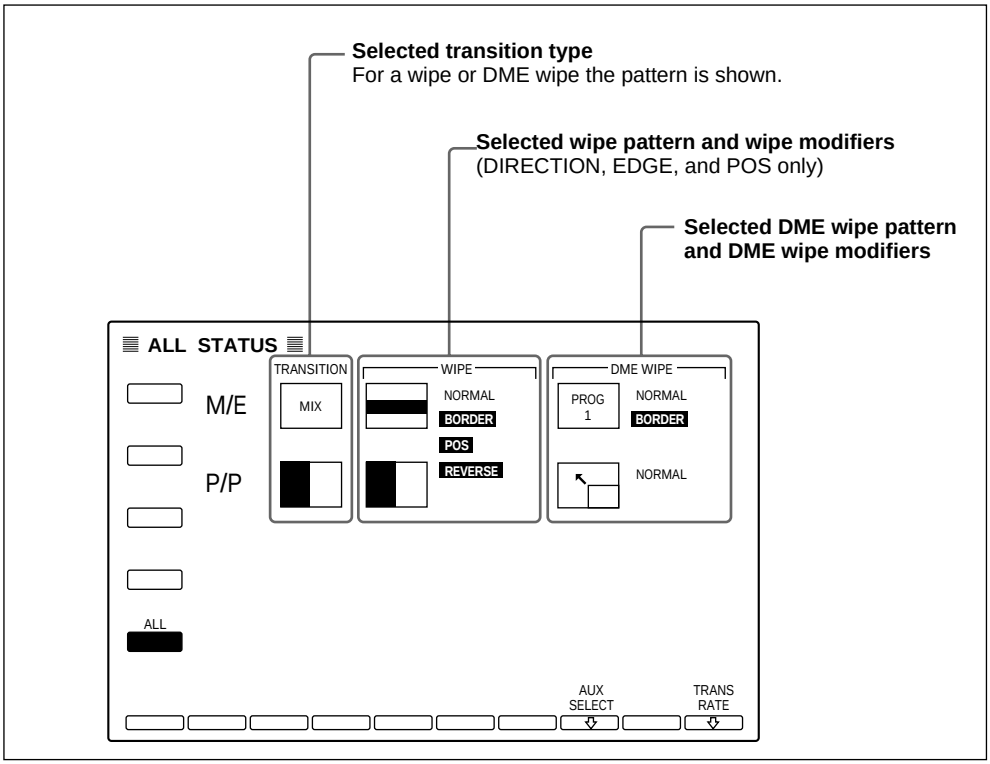
This section describes the function for displaying the current status of the selections for transitions and wipes on the M/E and PGM/PST banks and also explains the procedures for switching the AUX bus signal and setting the transition rate.

Status Display Operation

Displaying the ALL STATUS menu

From among the top menu selection buttons in the menu block, press the STATS button in the SYSTEM group, and then select the item 5 (ALL).

The ALL STATUS menu appears. This menu shows the status of transitions and wipes selected on the M/E and PGM/PST banks.



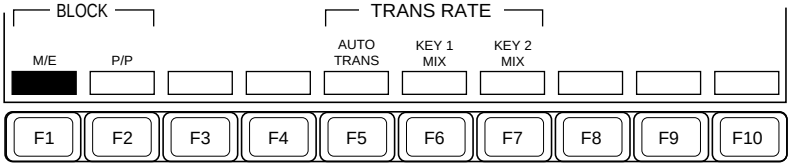
ALL STATUS menu display

To set the transition rate

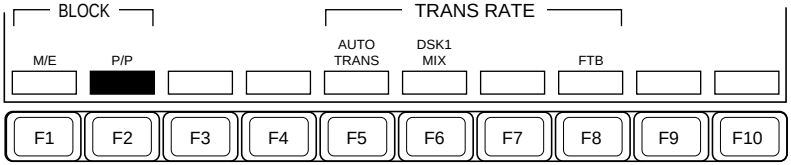
To set the transition rate in the ALL STATUS menu *(see the previous page)*, use the following procedure.

1 Press F10 (TRANS RATE).
Alternatively, press the TRANS RATE button in the numeric keypad section twice in quick succession.

The function key indications change as follows. The indications for F5 to F8 depend on the selections of F1 or F2.



Function key indications in the ALL STATUS menu (when F1 is selected)



Function key indications in the ALL STATUS menu (when F2 is selected)

2 Press F1 (M/E) or F2 (P/P), to select the corresponding bank.

3
- If you pressed F1 in step **2**, now press one of F5 to F7, to select the transition rate setting from the following:
  F5 (AUTO TRANS): The auto transition rate set in the M/E transition control section
  F6 (KEY1 MIX): Mix rate for M/E key 1
  F7 (KEY2 MIX): Mix rate for M/E key 2
  The mix rates set with F6 and F7 apply to the transitions executed using GPI inputs.
- If you pressed F2 in step **2**, now press one of F5 to F8, to select the transition rate setting from the following:
  F5 (AUTO TRANS): The auto transition rate set in the PGM/PST transition control section
  F6 (DSK1 MIX): Mix rate for DSK 1
  F8 (FTB): The rate set for a fade-to-black in the DSK control section

(Continued)

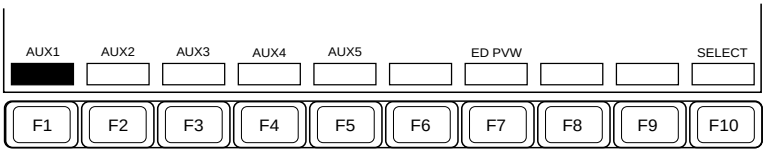
4 Enter the transition rate (duration) from the numeric keypad, and press the ENTER button.

To select an auxiliary bus signal

To select an auxiliary bus signal in the ALL STATUS menu, use the following procedure.

1 Press F8 (AUX SELECT).

The function key indications change as follows.



Function key indications in the ALL STATUS menu (when F8 is selected)

2 Press the function key corresponding to the desired auxiliary bus.

3 Enter the button number corresponding to the desired signal from the numeric keypad, or use the cursor movement buttons (↑ ↓ ← →) to align the cursor with the required signal display, then press F10 (SELECT).

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Chapter 5
Chroma Keying

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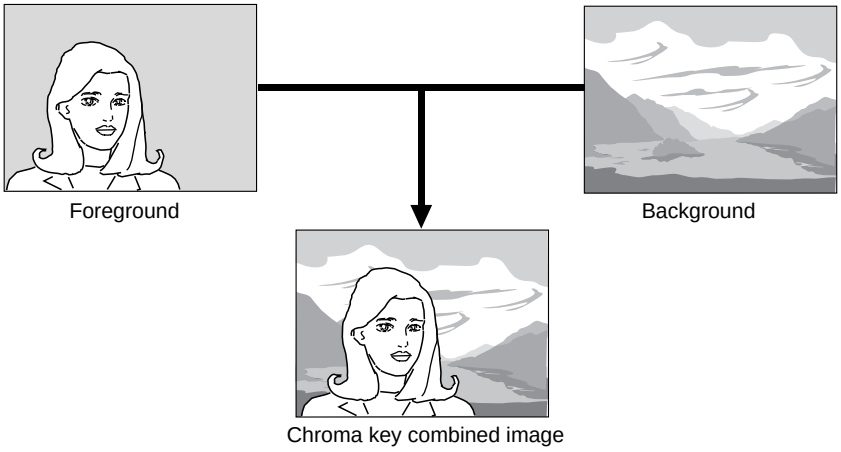
Overview

Chroma keying uses a specific color in a foreground image to create a key signal, which is then used to combine another image by keying.

The following figure illustrates this combination of a foreground image and background image to create a chroma key combined image.



Source Signals for Chroma Keying

Combine a background signal selected in background bus and a foreground signal selected in key bus as the same way with an ordinary transition.

Signal allocation and selection

In order to display the signals for chroma keying (the foreground signal for chroma keying or the chroma key signal) on a monitor, it is first necessary to allocate them to cross-point buttons on the control panel.
You carry out this allocation in a setup menu *(see page 13-43)*.

Option

To use chroma keying on the HDS-7150 requires an optional HKDS-7031 Chromakey Board.

CHROMA KEY Menu

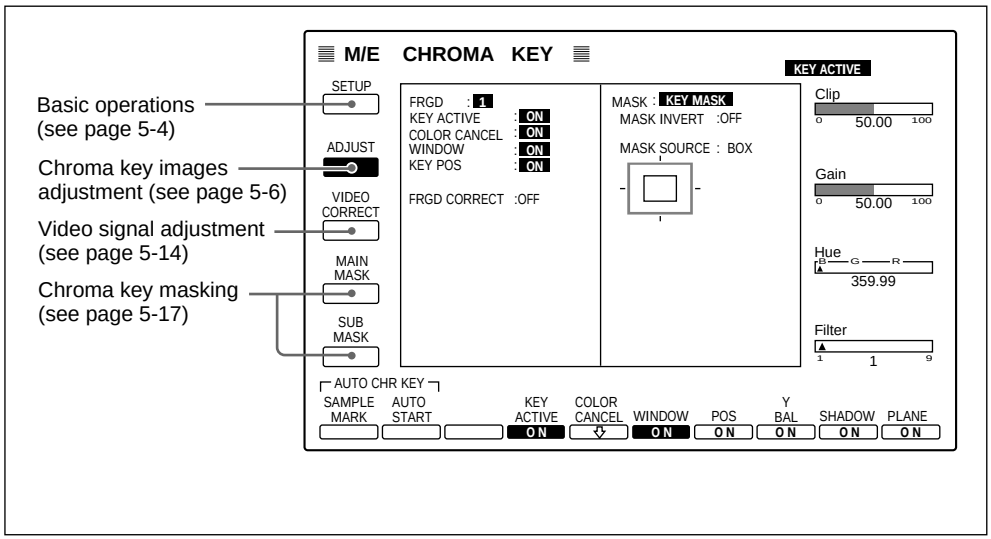
For most chroma key operations, you use a special-purpose chroma key menu for the keyer concerned.

Accessing the chroma key menu

For example, to access the M/E CHROMA KEY menu, use any of the following operations:

- Press the CHR KEY top menu button in the M/E bank of the menu control section.
- Open the M/E KEY1 or M/E KEY2 menu, and press F4 (CHROMA) of KEY TYPE twice in rapid succession.

The following menu is displayed.



Example M/E CHROMA KEY menu display

Basic Operations

You select the foreground and background on the cross-point buttons, then combine them by means of a key transition.

Carry out the following procedure on the M/E bank.

1 Press the top menu select button KEY 1 or KEY 2 of the M/E group.

2 Using a menu (KEY 1 or KEY 2), select chroma key as the key type.

3 Make the same preparations as for an ordinary key transition.

Select “KEY BUS” for both of the key fill and the key source, to carry out self-keying.

4 Carry out the transition, to insert the key.

5 For an optimum result carry out the adjustments in the next section “Adjusting the Chroma Key Image” *(page 5-6)*. If necessary, see also the sections “Video Signal Adjustment” *(page 5-14)* and “Chroma Key Masking” *(page 5-17)*.

Additive Mix

When you are using the enhanced chroma key function, in the SETUP (CHROMA KEY) menu an additive mix is possible.

Using an additive mix to combine images

In normal chroma keying, a key signal is used to cut a hole in a background, and this is combined with a foreground cut out by the key signal. In an additive mix, however, the foreground is combined unaltered (without the effects of a key signal).
In practice it is necessary to replace the blue background of the foreground signal by black, and for this purpose the color cancel function *(see page 5-8)* is used.
This additive mix is effective to provide a realistic combined image when it includes translucent objects such as objects made of glass.

To use an additive mix to combine images, in the SETUP menu, press F10 (KEY MIX), to select “ADD”.

Note

When using an additive mix to combine images, be sure to use the color cancel function to change the blue background to black.

Adjusting the Chroma Key Image

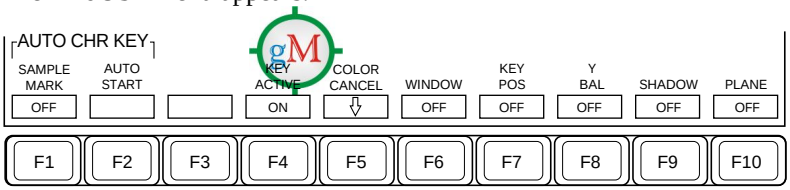
There are two ways of adjusting the output from chroma keying: automatically, using the auto chroma key function, or manually, making individual adjustments from the menu.
In general the most effective and time-efficient method is to use the auto chroma key function for the initial adjustment, and then only if further adjustment is still required, use the manual facilities.

Using the auto chroma key function

The auto chroma key function automatically derives the color to be used for chroma keying from a sample area of the foreground signal identified by the operator. Use the following procedure.

1 In the CHROMA KEY menu, select item 2 (ADJUST).

The ADJUST menu appears.



Function key indications in the ADJUST menu

2 Press F1 (SAMPLE MARK), turning it on.

The displays just the foreground signal, and a white frame marking the sample area. If you are applying color cancel *(see page 5-8)*, video adjustment *(see page 5-14)*, or chroma key masking *(see page 5-17)*, these processes will be temporarily suspended while the auto chroma key function is in effect, and restored afterwards.

3 Adjust the parameter settings so that the sample frame is entirely within the area being used for chroma keying (usually the blue background).

Knob	Parameter	Setting
1	H Pos	Set the horizontal position of the frame (–50.00 to +50.00)
2	V Pos	Set the vertical position of the frame (–50.00 to +50.00)
3	Size	Set size (0.00 to 100.00)

4 Press F2 (AUTO START).

This starts the auto chroma key function and F4 (KEY ACTIVE) turns on; the combined picture then appears on the monitor.

Using manual adjustment

Activating the "key active" function displays the combined chroma key image on the monitor. You can then make manual adjustments to the chroma key parameters, using the following procedure.

1 In the ADJUST menu, set F4 (KEY ACTIVE) to "ON".

2 Adjust the parameters as follows.

Knob	Parameter	Setting
1	Clip	Set clip level on the key signal (0.00 to 100.00)
2	Gain	Set key sharpness (0.00 to 100.00)
3	Hue	Set key hue (0.00 to 359.99)
4	Filter	Set filter coefficient (1 to 9)

Making manual color cancel adjustment

If the background color is affecting the foreground image, by turning the color cancel function on you can eliminate this effect.
Use the following procedure.

1 In the ADJUST menu, set F4 (KEY ACTIVE) to “OFF”.

The foreground only appears on the monitor.

2 Select F5 (COLOR CANCEL).

3 Set F1 (COLOR CANCEL) to “ON” and adjust the parameters.

Knob	Parameter	Setting
1	Luminance	Set luminance (0.00 to 100.00)
2	Saturation	Set saturation (0.00 to 100.00)

4 Set F4 (KEY ACTIVE) to “ON” in the ADJUST menu.

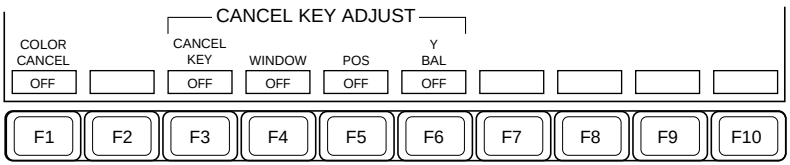
The combined chroma key image reappears.

Adjusting the color cancel key

It is possible to adjust the key signal for the color cancel function.
Use the following procedure.

1 In the ADJUST menu, select F5 (COLOR CANCEL).

The COLOR CANCEL menu appears.



Function key indications in the COLOR CANCEL menu
(using the enhanced chroma key function)

2 Press F1 (COLOR CANCEL), turning it on.

This turns the color cancel function on.

3 Adjust the parameters.

Knob	Parameter	Setting
1	Luminance	Set luminance (0.00 to 100.00)
2	Saturation	Set saturation (0.00 to 100.00)
4	Filter	Set filter coefficient (1 to 9)

4 Press F3 (CANCEL KEY), turning it on.

This turns the cancel key function on.

5 Adjust the color cancel key parameters.

Knob	Parameter	Setting
1	Clip	Set clip level on the color cancel key signal (0.00 to 100.00)
2	Gain	Set color cancel key gain (0.00 to 100.00)

6 Press any of F4 and F6 as necessary and adjust the parameters.

F4 (WINDOW): Adjust the detection range for the color cancel key.

Knob	Parameter	Setting
1	Crop	Set the CROP value (see page 5-10) (0.00 to 100.00)
2	Angle	Set the ANGLE value (see page 5-10) (0.00 to 180.00)

F5 (POS): Adjust the edge position for the color cancel key.

Knob	Parameter	Setting
1	Left Pos	Set position of key left edge (–3.00 to +3.00)
2	Right Pos	Set position of key right edge (–3.00 to +3.00)
3	Phase	Move the key

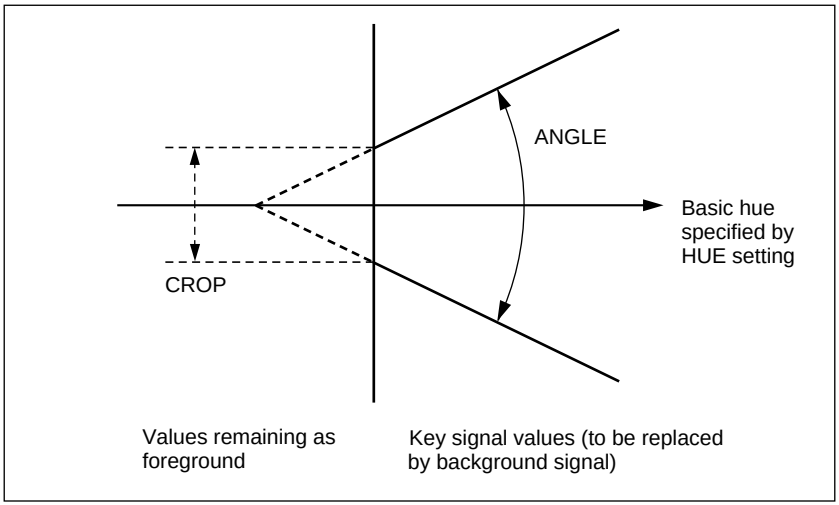
F6 (Y BAL): Adjust the degree to which a Y balance is added to the color cancel key.

Knob	Parameter	Setting
1	Mixtur	Proportion of Y balance key (0.00 to 100.00)

Making the window adjustment

You can adjust the detection range of the information used to produce the key signal. When this function is off, the default range is used for image adjustment.

Chroma keying uses a particular hue (typically a blue background color) in the foreground signal to produce the key signal, and the window function specifies the range of signal values to be regarded as this background hue. The range for this background hue corresponds to a truncated sector as seen on a vectorscope (see illustration below). This range is specified by two parameters: the "ANGLE" parameter, which determines the range of the hue parameter, and the "CROP" parameter, which determines the degree of truncation.


ANGLE
Basic hue specified by HUE setting
CROP
Values remaining as foreground
Key signal values (to be replaced by background signal)

Window adjustment

- The default values (and the values when the window function is off) are: CROP 37.5 and ANGLE 93.7.
- The values for CROP and ANGLE are not affected by the auto chroma key function.

Before adjusting the window parameters, it is essential to have adjusted the clip, gain and hue parameters correctly. After doing this, use the following procedure.

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1 In the ADJUST menu, set F4 (KEY ACTIVE), F5 (COLOR CANCEL) and F6 (WINDOW).

2 Turn control knobs 1 and 2 clockwise.

Knob	Parameter	Setting
1	Crop	Set the CROP value (0.00 to 100.00)
2	Angle	Set the ANGLE value (0.00 to 180.00)

This sets the CROP and ANGLE values to zero. In this state, the background color area is at a minimum, and almost the entire image is foreground.

3 Turn knob 1 counterclockwise until the background image replaces the background color.

4 Turn knob 2 counterclockwise until immediately before the key signal level in the foreground area begins to drop.

Adjusting the Y balance

In conventional chroma keying, the key signal is formed using the chroma component alone, and therefore if there are portions of the foreground of the same hue they will all be replaced by the background video. Using the Y balance function, however, it is possible to restrict the replacement to a specified intensity range even for the matching hue.

It is possible to use the Y balance function separately for the key signal for combination and to the key signal for the color cancel function. When used for the key signal for combination, the foreground becomes such that the color cancel effect has been applied to it. This is therefore useful when, for example, there is smoke in the video image.

When the Y balance function is used for the color cancel key, the original color of the relevant portions is not canceled and appears, so that foreground colors akin to the background color (blue) can be combined with the background.

Use the following procedure to adjust the Y balance for the key signal for combination.

1 In the ADJUST menu, press F8 (Y BAL), turning it on.

This turns the Y balance function on.

2 Adjust the parameters.

Knob	Parameter	Setting
1	Clip	Set the reference level for the cut out color (0.00 to 100.00)
2	Gain	Set the key gain (0.00 to 100.00)
3	Luminance	Set luminance (0.00 to 100.00)

Adjusting the key position

You can adjust the horizontal position of the key source (foreground video). Use the following procedure.

1 In the ADJUST menu, set F7 (KEY POS) to “ON”.

2 Adjust the key source position parameter.

Knob	Parameter	Setting
1	Left Pos	Set position of key left edge (–3.00 to +3.00)
2	Right Pos	Set position of key right edge (–3.00 to +3.00)
3	Phase	Move the key

Adjusting the chroma key shadow

This function provides a more realistic treatment when the shadow of an object in the field of view falls on the blue background. Since parts of the blue background darker than a specified intensity are treated as shadows, there is no effect on cutting out of the foreground.
Use the following procedure.

1 In the ADJUST menu, press F9 (SHADOW), turning it on.

This turns the chroma key shadow function on.

2 Adjust the parameters.

Knob	Parameter	Setting
1	Luminance	Set luminance (0.00 to 100.00)
2	Gain	Set the shadow key gain (0.00 to 100.00)
3	Density	Set shadow density (0.00 to 100.00)
4	Softness	Set the degree of shadow blurring (0.00 to 100.00)

Using the plane function

In an additive mix, since no key is applied to the foreground, any variations in the blue background show up in the combined image. To avoid this, a particular intensity level for the blue background can be set, and the portions of lower intensity forcibly changed to black.
Use the following procedure.

1 In the CHROMA KEY menu, select item 2 (ADJUST).

The ADJUST menu appears.

2 In the ADJUST menu, press F10 (PLANE), turning it on.

This enables the plane function.

3 Adjust the parameter.

Knob	Parameter	Setting
1	Luminance	Set luminance (0.00 to 10.00)

Within the blue background, portions of intensity lower than the specified value are changed to black.

Video Signal Adjustment and Spot Color Adjustment

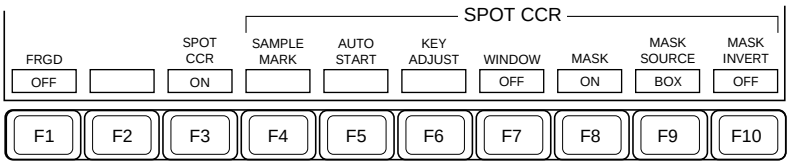
When you are using the enhanced chroma key function, it is possible to carry out both overall and localized adjustments to the video signal.

Adjusting the overall color for the foreground

You can change the gain and hue for the whole foreground.
Use the following procedure.

1 In the CHROMA KEY menu, select item 3 (VIDEO CORRECT).

The VIDEO CORRECT menu appears.



Function key indications in the VIDEO CORRECT menu

2 To adjust the foreground video, press F1 (FRGD), turning it on.

3 Adjust the parameters.

Knob	Parameter	Setting
1	Video Gain	Set video signal overall gain (0.00 to 200.00)
2	Y Gain	Set Y signal gain (0.00 to 200.00) (Actual Y gain is video gain × Y gain setting.)
3	C Gain	Set chrominance signal gain (0.00 to 20.00) (Actual C gain is video gain × C gain setting.)
4	Hue Delay	Set hue offset (–180.00 to +180.00)

Adjusting the spot color for the foreground

You can make video adjustments for a portion of a specified color (for example red) within the foreground, changing it to a different color (for example yellow), without affecting portions of other colors.
Use the following procedure.

1 In the VIDEO CORRECT menu, press F3 (SPOT CCR), turning it on.

- To select the portion for which the color is changed automatically, go to step **2**.
- To select the portion for which the color is changed manually, go to step **5**.

2 Press F4 (SAMPLE MARK), turning it on.

3 Adjust the parameter settings so that the sample frame is entirely within an area of the color which you wish to change.

Knob	Parameter	Setting
1	H Pos	Set the horizontal position of the frame (–50.00 to +50.00)
2	V Pos	Set the vertical position of the frame (–50.00 to +50.00)
3	Size	Set size (0.00 to 100.00)

4 Press F5 (AUTO START).

In automatic selection, no key gain adjustment is carried out. If necessary refer to step **5** to adjust the key gain.

5 Press F6 (KEY ADJUST), turning it on, and adjust the parameters.

Knob	Parameter	Setting
1	Luminance	Set luminance (0.00 to 100.00)
2	Saturation	Set saturation (0.00 to 100.00)
3	Hue	Set hue (0.00 to 359.99)
4	Gain	Set the key gain (0.00 to 100.00)

(Continued)

6 Press F7 (WINDOW), turning it on, and adjust the detection range for the spot color key.

Knob	Parameter	Setting
1	Luminance	Set luminance (0.00 to 100.00)
2	Saturation	Set saturation (0.00 to 100.00)
3	Hue	Set the range of hue (0.00 to 100.00)

7 Press any of F8 to F10 as necessary, to restrict the area for spot color adjustment.

F8 (MASK): Toggle the spot color mask on and off.
F9 (MASK SOURCE): Select the mask source, and adjust the parameters. The types of mask source available are the same as in the section “Chroma Key Masking” *(page 5-17)*.
F10 (MASK INVERT): Press to invert the sense of the mask.

8 Press F3 (SPOT CCR), turning it on, and select the replacement color.

Knob	Parameter	Setting
1	Luminance	Set luminance (0.00 to 100.00)
2	Saturation	Set saturation (0.00 to 100.00)
3	Hue	Set hue (0.00 to 359.99)

Chroma Key Masking

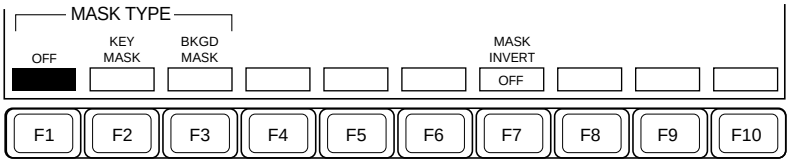
If there are unwanted background “holes” in the chroma key image, you can mask these areas off. For chroma key masking you can use the main and subsidiary masks independently or simultaneously on the selected keyer (KEY 1 or KEY 2).

To use the chroma key main mask

Use the following procedure.

1 In the CHROMA KEY menu, select item 4 (MAIN MASK).

The MAIN MASK menu appears.



Function key indications in the CHROMA KEY MAIN MASK menu

2 Press F2 or F3 to select the mask type.

F2 (KEY MASK): key masking
F3 (BKGD MASK): background masking

3 Adjust the box mask source parameters.

Knob	Parameter	Setting
1	Top	Top edge position of box (0.00 to 100.00)
2	Left	Left edge position of box (0.00 to 100.00)
3	Right	Right edge position of box (0.00 to 100.00)
4	Bottom	Bottom edge position of box (0.00 to 100.00)
1	Softness	Set the degree of edge softness (0.00 to 100.00)

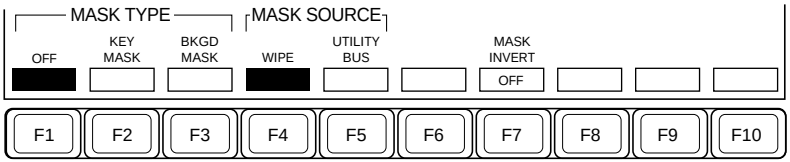
4 To invert the sense of the mask source, press F7 (MASK INVERT), turning it on.

To use the subsidiary mask

Use the following procedure.

1 In the CHROMA KEY menu, select item 5 (SUB MASK).

The SUB MASK menu appears.



Function key indications in the CHROMA KEY SYB MASK menu

2 Press F2 or F3, turning it on, to select the mask type.

F2 (KEY MASK): key masking
F3 (BKGD MASK): background masking

3 Press F4 or F5 to select the mask source.

F4 (WIPE): wipe pattern from the wipe generator.
When you mask this selection, make the wipe pattern selection and modifier settings in the M/E WIPE menu *(see page 4-63)*, then return to the M/E KEY 1 menu.
When you select a wipe pattern for the pattern key, the EDGE and DIRECTION modifier settings in the WIPE menu become invalid.

F5 (UTILITY BUS): external signal selected on the utility bus.
For example, to select the signal on the M/E utility bus, hold down the M/E UTIL button in the auxiliary delegation section, and press the cross-point button assigned to the required signal.

4 Adjust the mask source parameters.

When you have selected a wipe pattern:

Knob	Parameter	Setting
1	Size	Set pattern size (0.00 to 100.00)
2	Softness	Set the degree of edge softness (0.00 to 100.00)

When you have selected an external video signal:

Knob	Parameter	Setting
1	Clip	Set clip level on the mask signal (0.00 to 100.00)
2	Softness	Set the degree of edge softness (0.00 to 100.00)

5 To invert the sense of the mask source, press F7 (MASK INVERT), turning it on.

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Chapter 6
Snapshots

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Snapshot Operations **6-6**

Overview

Taking a snapshot means making a copy of the current settings of the system, and saving it in memory so that you can instantly restore the same setting state at a later time.

Types of snapshot

Snapshots can be divided into the following two types:

- **Snapshots which apply to the system as a whole**
  The term “snapshot” alone normally refers to this type. However, for snapshots restricted to the M/E bank or PGM/PST bank but falling in this category the term “M/E snapshot” and so forth are used.
  The DME snapshots also fall in this snapshot type.
- **Snapshots which apply only to specific functions**
  These refer to DSK snapshots *(see page 4-47)*. The DSK snapshots cover the DSK 1 settings, excluding the DSK on/off settings.

  DSK snapshots cannot be manipulated in the REGISTER menu, but it is possible to save them to floppy disk by using the DISK menu.

The rest of this section gives an overview of the snapshots which apply to the system as a whole.

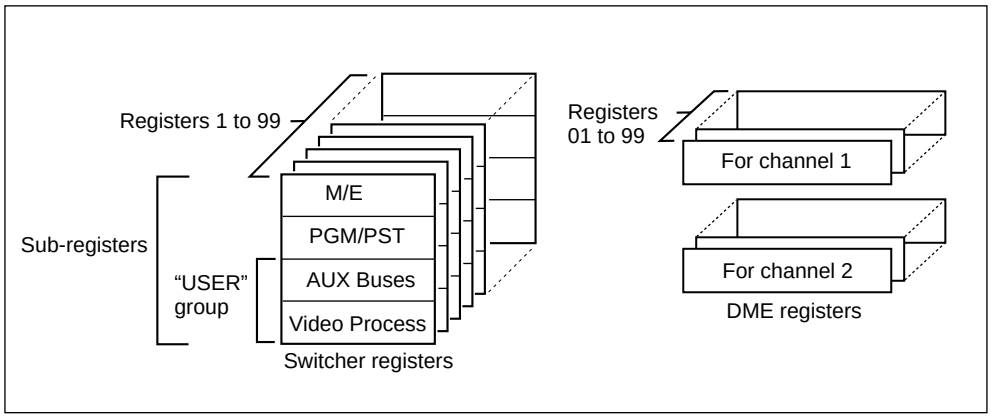
Note

If snapshots including DME wipes and snapshots including processed keys are recalled alternately, normal video reproduction may not possible.

Snapshots and Registers

Snapshots are held in units of memory termed registers, numbered from 01 to 99. As shown below, each register comprises four sub-registers, each holding the data relating to a different section of the control panel settings. Basically it is possible to save and recall a whole register (i.e. all sub-registers) or various sub-registers of a single register.
The DME has 99 registers numbered from 01 to 99 for each channel. They can be used individually for saving and recalling operations.

For more details on DME snapshot, see page 6-9.



Arrangement of snapshot registers

Significance of sub-registers

The settings held in each sub-register of a snapshot are as follows.

M/E: Settings on the M/E bank. This includes the color background settings and chroma key settings.
PGM/PST: Settings on the PGM/PST bank, including downstream key settings and color background settings.
AUX Buses: Settings in the auxiliary bus bank.
Video Process: Settings for video input using the video process function, and settings for color corrector CH1 and CH2 buses.

Two of these four sub-registers - AUX Buses and Video Process - are grouped together in what is known as the USER group. For manipulating the USER group, however, it is possible to select which of these four are actually included, by using a setting in the REGISTER menu.
You can use REGISTER menu to list the contents of the registers, and to manipulate them (copy, swap, move and delete functions).

For details of the register operations, see Chapter 8.

Settings not saved in snapshots

Settings relating to the following switcher functions cannot be saved in snapshots:
• Port enable *(see page 11-3)*
• Key memory *(see page 4-34)*
• Setup data *(see Chapter 13)*

Snapshot attributes

There are also a number of attributes you can attach when saving a snapshot. These control the system behavior when a snapshot is recalled. There are four different attributes, as follows.

"EFFECT DISSOLVE" attribute: When the snapshot is recalled, the new settings are faded in gradually in a dissolve transition. The transition rate settings included in the snapshot are used for the dissolve transition.

"AUTO TRANSITION" attribute: When the snapshot is recalled, an auto transition is automatically started.

"XPT DISABLE" attribute: When the snapshot is recalled, the cross-point button selections are not changed. In other words this recalls the settings independent of the signal selections.

"GPI OUT" attribute: Recalling the snapshot automatically trigger the preset GPI outputs.
The "GPI OUT" attribute applies to a whole register, and cannot be set independently for sub-registers. You can set this attribute from the REGISTER menu *(see page 8-15)*.

You can use the REGISTER menu to check which attributes are assigned to which snapshots.

Attribute restrictions

Not all attributes can be applied to all sub-registers. The following table shows which combinations are possible.

Sub-registers		Attribute		
		"EFFECT DISSOLVE"	**"AUTO TRANSITION"**	**"XPT DISABLE"**
M/E		Yes	Yes	Yes
PGM/PST		Yes	Yes	Yes
USER group	AUX Buses	No	No	Yes
	Video Process	No	No	No

Snapshot Operations

You can use the numeric keypad section for saving and recalling snapshots.

Saving a snapshot

To save a snapshot using the numeric keypad section, use the following procedure.

Note

If you specify the number of a register which already holds a snapshot, then the saving operation overwrites the previous snapshot. Before specifying the number of the register in which you wish to save the snapshot, check that the register is empty, or contains a snapshot which is no longer needed.
You can check the contents of registers using the REGISTER menu *(see page 8-3)*.

1 Set up the switcher in the state you wish to save in the snapshot.

2 In the numeric keypad section, press the SNAPSHOT button.

This delegates the numeric keypad section to snapshot operations.

3 Select the sub-register or sub-registers. You can press any combination of the sub-register selection buttons, turning them on, as follows.

M/E button: Select the M/E sub-register.
P/P DSK button: Select the PGM/PST sub-register.
USER button: Select the currently selected sub-registers of the USER group (AUX Buses and Video Process).
You can specify which of the sub-registers of the USER group this button selects, using the REGISTER menu *(see page 8-16)*.

Pressing the ALL button selects all sub-registers, and lights the other buttons.
The buttons to light when the ALL button is pressed can be specified using a setup menu operation *(see page 13-49)*.

4 Press the STORE/LEARN button, turning it on.

The display shows the number of the register for which you carried out a snapshot saving operation last time.

5 Use the numeric keypad to enter the register number where you want to save the snapshot.
To use the first available empty register, enter a decimal point only.

The display shows the word “LEARN” followed by the register number you have entered.
When the sub-registers which you specified in step **3** above are empty, a lowercase “e” appears after the register number. When all sub-registers of a register are empty, a capital “E” appears after the register number.

6 To apply attributes, press the required combination of the attribute buttons, turning them on.

The correspondence between buttons and attributes is as follows:
+/–/EFF DIS button: “EFFECT DISSOLVE” attribute
CLR/AUTO TRANS button: “AUTO TRANSITION” attribute
TRIM/XPT DSBL button: “XPT DISABLE” attribute

7 Press the ENTER button.

This saves the snapshot in memory, and the STORE/LEARN button goes off.

Recalling a snapshot

To recall a snapshot using the numeric keypad section, use the following procedure.

1 Press the SNAPSHOT button, turning it on.

2 Select the sub-register or sub-registers, using the sub-register selection buttons.

*For details, see step **3** in the previous section "Saving a snapshot" (page 6-6).*

3 Press the RCALL button, turning it on.

The display shows the number of the register which you recalled last time.

4 Use the numeric keypad to enter the register number from which you want to recall the snapshot.

The display shows the legend "RCALL" followed by the register number you have entered.
If the sub-registers of the snapshot selected in step **2** have attributes applied, the corresponding attribute selection buttons light. For example, if the M/E sub-register of the snapshot has the "AUTO TRANSITION" attribute, and the PGM/PST sub-register has the "XPT DISABLE" attribute, the CLR/AUTO TRANS button and TRIM/XPT DSBL buttons light simultaneously.

5 To apply attributes, press the required combination of the attribute buttons, turning them on.
To remove an attribute which is already applied, press the corresponding attribute selection button, turning it off.

The correspondence between buttons and attributes is as follows:
+/–/EFF DIS button: "EFFECT DISSOLVE" attribute
CLR/AUTO TRANS button: "AUTO TRANSITION" attribute
TRIM/XPT DSBL button: "XPT DISABLE" attribute

6 Press the ENTER button.

This recalls the specified snapshot, restoring the relevant sections of the control panel to their states when the snapshot was saved. This only affects settings relating to the signals, however, and does not change the currently displayed menu, for example.
After recalling the snapshot, the RCALL button remains on, and you can select a different snapshot immediately by repeating from step **2** above.

To restore the state before a snapshot was recalled

When you recall a snapshot, the immediately previous settings are saved in a register which is known as "LAST X". By recalling the settings from this register, you can return to the state immediately before recalling a snapshot; this is known as the "LAST X" function.
To execute the LAST X function, press the LAST X button in the numeric keypad.

DME snapshot operations

From the control panel of the switcher, you can save and recall DME snapshots.
Each DME has registers for 99 snapshots, numbered 01 to 99 as on the switcher.

To save or recall a DME snapshot

In the numeric keypad section press the DME 1 or DME 2 sub-register selection button *(see page 2-10)*, to select the corresponding DME. Otherwise, the procedure is the same as when saving or recalling a switcher snapshot.

Notes

- It is not possible to use the global channel for snapshot operations.
- It is not possible to execute keyframes and recall snapshots at the same time.

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Chapter 7
Keyframe Effects

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Overview

Fitting the optional BKDS-7030 Keyframe Control Panel Unit in the control panel allows you to build keyframe effects.

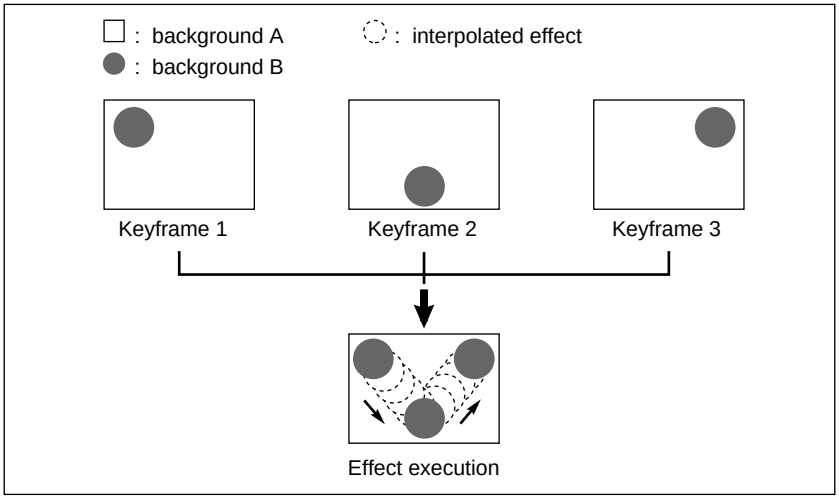
This section gives an overview of keyframe effects and the associated operations.

Keyframes and Effects

A keyframe is a set of data which determines the instantaneous state of an image which varies with time.

An effect, in turn, is obtained from a sequence of keyframes, interpolated along the time axis so as to appear continuous.

The following figure illustrates the creation of three keyframes with a circular wipe pattern in three different positions, and the resulting interpolated effect.



Example of keyframe effect creation

A series of keyframes for producing an effect can be held in memory, identified by a register number. You can then recall the effect, and play it back.

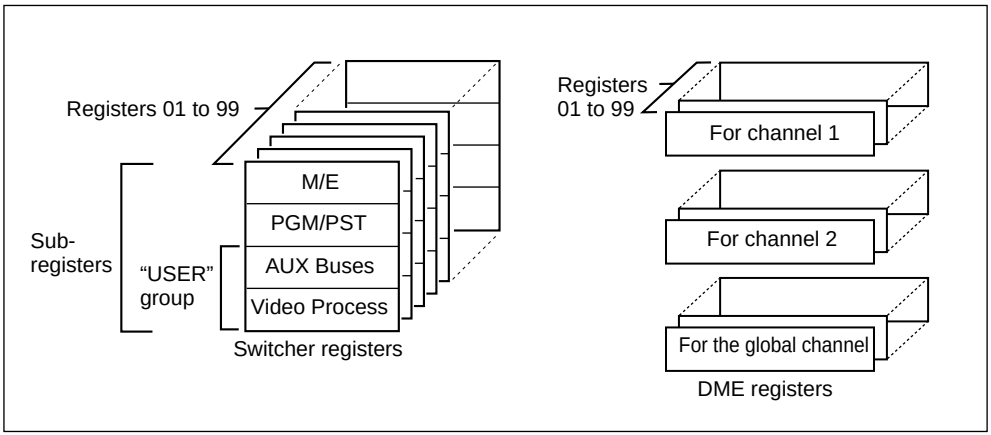
Control of DME Effects

From the keyframe control panel you can also control keyframes and effects held in the HKDS-7071/7061 mounted in the switcher or the HDME-7000 units (up to two channels) connected to the switcher.

Basically operations, from the creation of keyframes to the execution of effects, are the same as on the switcher. The menus used for path settings are different, however. And for this refer to the keyframe section of the HZS-7040 User's Guide Volume 2, Volume 3 or the HZDM-7020 User's Guide.

Organization of Registers for Keyframe Effects

The collection of keyframes making up an effect is stored in memory, and identified by a register number from 01 to 99. On the switcher each register is divided into four sub-registers, each holding its allotted data. In a switcher register, the two sub-registers for frame memory, the AUX buses, and for video processing are handled together under the name “USER”.
For the DME registers, each DME channel (including the global channel) has registers 01 to 99, each of which can be saved and recalled individually.



Registers for keyframe effects

Once an effect is saved in a switcher register, you can copy or move the effect from one register to another *(see page 8-7)* or save it to a floppy disk *(see page 9-7)*.

Operation Sequence

The following diagram shows the principal steps in the process from creating the keyframes to the execution of the effect.

Selecting a register ***(see page 7-6)***
When creating a new effect, select an empty register; to edit an existing effect, select the corresponding register.

⬇

Specifying sub-registers and edit points ***(see page 7-7)***
Select the sub-register or channel to which the editing applies and specify the edit points.

⬇

Creating and editing keyframes ***(see page 7-8)***
Use insertion, deletion and modification to create the necessary keyframes.

⬇

Time settings ***(see page 7-15)***
Set the overall length of the effect and the time intervals between keyframes.

⬇

Path settings ***(see page 7-20)***
Select the manner in which the interpolation between keyframes is carried out.

⬇

Effect execution ***(see page 7-25)***
A smooth effect transition is obtained, according to the time and path settings.

⬇

Saving the effect ***(see page 7-30)***
When the effect is completed, you can save it in a register.

Keyframe Creation and Editing

Accessing a Register

To recall the contents of a register, use the following procedure.

1 Press the EFF button in the numeric keypad block, turning it on.

This allocates the numeric keypad block to keyframe operations.

2 In the sub-register selection section, press the button or buttons corresponding to the sub-register or DME channel(s) you wish to use.

Note

It is not possible to access switcher sub-registers individually. Whichever of the sub-register selection buttons (M/E, or P/P DSK, and USER) is lit, all of the switcher sub-registers are recalled.

3 Press the RECALL button, turning it on.

4 Enter the number of the register you wish to access.

- When creating a completely new effect, enter the number of an empty register.
- To access the first empty register after the currently accessed register, without making an explicit specification, enter a period only as the number.

5 Press the ENTER button.

This accesses the specified register, and recalls its contents.

Specifying Sub-Registers and Edit Points

Selecting the sub-register to which editing applies

To select the sub-register (or channel) to which keyframe editing applies, press one of the sub-register selection buttons (M/E, or P/P DSK, USER, DME 1 and DME 2, and DME GLBL).

Specifying edit points

To insert, modify, or delete a keyframe, it is necessary to stop the effect at the appropriate point on the time axis. This is referred to as an edit point.
It is possible to carry out editing at any keyframe in the effect, or between two keyframes.

To specify an edit point, carry out the following operation on the keyframe control panel.

For details of the component parts of the keyframe control panel, see page 2-16.

1 Press the EDIT ENBL button, turning it on.

2 Carry out any of the following operations.
- Move the fader lever and stop the effect at the desired point.
- Press the NEXT KF button to specify the next keyframe after the current position.
- Press the PREV KF button to specify the last keyframe before the current position.
- To move to a specified keyframe, press the GO TO KF button, and enter the number of the keyframe from the numeric keypad.
- To move to a specified time code position, press the GO TO TC button, and enter the time code value from the numeric keypad.

Changing the reference channel

When for example you use the NEXT KF button to move a keyframe, one sub-register is used to determine where the next keyframe is, and the other sub-registers follow suit. The sub-register used for reference is termed the reference channel, and only the corresponding sub-register selection button lights green. The reference channel is determined according to the following fixed order of precedence.

M/E or P/P DSK > USER > DME1 > DME2 > DME GLBL

To change the reference channel, holding down the EFF button in the numeric keypad block, press the required sub-register selection button. The sub-register selection button which you have pressed lights green.

Creation

Creating a new keyframe effect

To create a new keyframe effect, first access an empty register, then use the following procedure to create and insert the frames one by one. In this case it is not necessary to specify the edit points.

1 Press the EDIT ENBL button, turning it on.

The system switches to edit mode, allowing keyframes to be created and edited.

2 Create the image for the first keyframe.

3 Press the INS button.

This saves the current image as the first keyframe.

4 Create the image for the next keyframe.

5 Press the INS button.

This inserts the new keyframe (keyframe 2) after keyframe 1.

Repeat steps **4** and **5** as necessary, until the required number of keyframes are created.

Insertion

Inserting a keyframe

Use the following procedure to insert a keyframe in an existing effect.

1 Press the EDIT ENBL button, turning it on.

2 Stop the effect at the required edit point.

3 Create the keyframe to be inserted.

4 Press the INS button.

When the edit point is on a keyframe, to insert the new keyframe before, hold down the SHIFT button while pressing the INS button.

This inserts the new keyframe.

When you insert a new keyframe, the total effect duration may change.

For details see the section "Changes in Effect Duration Due to Inserted Keyframes" (page 7-17).

Modification

Modifying keyframes

Use the following procedure to modify already created keyframes.

1 Press the EDIT ENBL button, turning it on.

2 Stop the effect at the required edit point.

If the edit point is on a keyframe, that keyframe will be modified; if the edit point is between keyframes, the previous keyframe will be modified.

3 Create the required new form of the keyframe.

4 Press the MOD button.

This modifies the keyframe.

Modifying more than one keyframe simultaneously

It is also possible to modify a number of created keyframes simultaneously. There are three slightly different procedures for doing this, corresponding to the following cases.

- Modifying all keyframes including and after a specified keyframe
- Modifying all of the keyframes
- Modifying all keyframes in a specified range

The following description covers the procedures for carrying out these modifications.

To modify all keyframes including and after a specified keyframe

1 Press the EDIT ENBL button, turning it on.

2 Stop the effect at the first keyframe to be modified.

3 Carry out the necessary changes.

4 Press the FROM TO button, turning it on.

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5 Press the MOD button.

This simultaneously modifies all keyframes including and after the specified keyframe.

To modify all of the keyframes

1 Press the EDIT ENBL button, turning it on.

2 Carry out the necessary changes on any keyframe.

3 Press the FROM TO button, turning it on.

4 Press the decimal point button in the numeric keypad.

The legend “FT ALL” appears in the display in the numeric keypad block.

5 Press the MOD button.

This simultaneously modifies all keyframes.

To modify all keyframes in a specified range

1 Press the EDIT ENBL button, turning it on.

2 Stop the effect on any of the keyframes to be modified.

3 Carry out the necessary changes.

4 Press the FROM TO button, turning it on.

5 Enter the number of the first keyframe to be modified, using the numeric keypad, and press the ENTER button.

6 Enter the number of the last keyframe to be modified, using the numeric keypad, and press the ENTER button.

7 Press the MOD button.

This simultaneously modifies all keyframes in the specified range.

Deletion

Deleting keyframes

Use the following procedure to delete keyframes.

1 Press the EDIT ENBL button, turning it on.

2 Stop the effect at the required edit point.

If the edit point is on a keyframe, that keyframe will be deleted; if the edit point is between keyframes, the previous keyframe will be deleted.

3 To delete a number of keyframes together, press the FROM TO button.

For details of the procedure for specifying the keyframes, see the section "Modifying more than one keyframe simultaneously" (page 7-10).

4 Press the DEL button.

This deletes the keyframe or frames.

When you delete keyframes, the total effect duration changes.

For details see the section "Changes in Effect Duration Due to Keyframe Deletion" (page 7-18).

Movement

Moving keyframes

Use the following procedure to move keyframes.

1 Stop the effect on the keyframe to be moved.

2 To move a number of keyframes together, press the FROM TO button, and specify the keyframes.

For details of the procedure for specifying the keyframes, see the section "Modifying more than one keyframe simultaneously" (page 7-10).

3 Press the DEL button, temporarily deleting the current keyframe.

This saves the deleted keyframe or frames in the paste buffer.

4 Reposition the effect at the destination position for the moved keyframe or frames.

5 Press the PASTE button.

When the destination position is on a keyframe, to insert the new keyframe before, hold the SHIFT button down while pressing the PASTE button.

This inserts the keyframe or keyframes from the paste buffer.

Copying

Copying keyframes

Use the following procedure to copy keyframes.

1 Press the EDIT ENBL button, turning it on.

2 Stop the effect on the keyframe you wish to copy.

3 To copy more than one keyframe, press the FROM TO button, and specify the keyframes to be copied.

For details of the procedure for specifying the keyframes, see the section "Modifying more than one keyframe simultaneously" (page 7-10).

4 Press the COPY button.

This copies the keyframe or keyframes specified in steps **2** and **3** into the paste buffer.

5 Move to the edit point where you wish to insert the copy.

6 Press the PASTE button.

When the destination position is on a keyframe, to insert the new keyframe before, hold the SHIFT button down while pressing the PASTE button.

This copies the keyframe or keyframes from the paste buffer.

Undoing the Effect of an Edit

When you press the INS, DEL or MOD button, the previous state is saved in an area of memory known as the "LAST X buffer". After an erroneous operation, you can return to the previous keyframe state by pressing the LAST X button in the numeric keypad block.

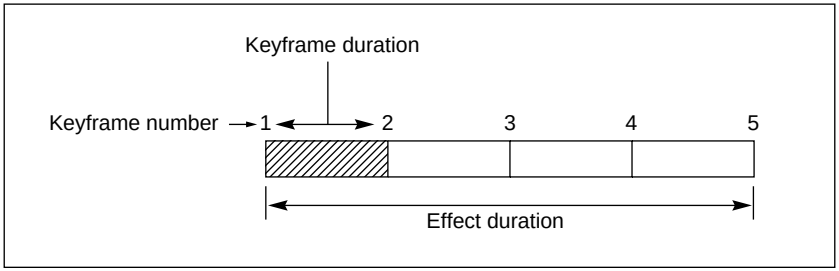
Time Settings

Keyframe Duration and Effect Duration

Effect execution times are determined by the effect duration and the keyframe durations.

- A keyframe duration is the execution time from a keyframe until the next keyframe.
- The effect duration is the total execution time from the first keyframe of the effect to the last keyframe.

If you change the effect duration, the keyframe durations within the effect are all automatically changed in proportion.



Schematic of keyframe durations and effect duration

Setting a keyframe duration

The default keyframe duration is one second. You can change the duration of an individual keyframe using the following procedure.

1 Press the EDIT ENBL button, turning it on.

2 Stop the effect on the keyframe whose duration you wish to change.

3 Press the KF DUR button.

4 Enter the numerical value in seconds and frames (ss.ff) from the numeric keypad, and press the ENTER button.

For example, enter 9.20 to set a duration of 9 seconds and 20 frames.

Note

Keyframe durations may change not only by explicit setting as here, but also if the overall effect duration is changed.

Setting the effect duration

Use the following procedure to set or change the effect duration.

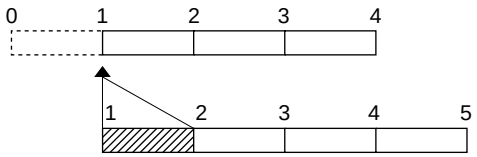
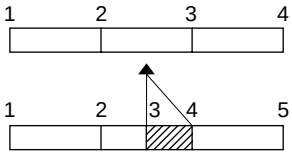
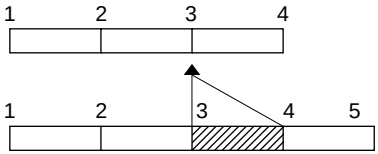
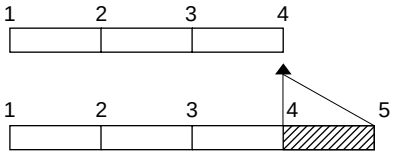
1. Press the EDIT ENBL button, turning it on.
2. Press the EFF DUR button.
3. Enter the numerical value in minutes, seconds and frames (mm.ss.ff) from the numeric keypad, and press the ENTER button.

   For example, enter 3.7.15 to set a duration of 3 minutes, 7 seconds and 15 frames.

The effect duration also changes when you insert or delete keyframes, as described in the following items.

Changes in Effect Duration Due to Inserted Keyframes

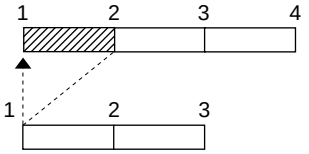
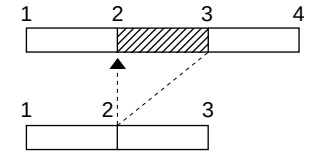
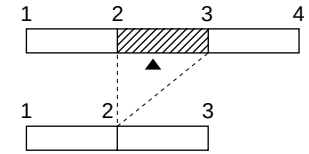
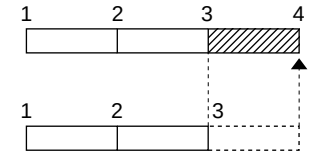
- When the effect is stopped on a keyframe, then if you insert a keyframe, the effect duration is increased by the duration of the inserted keyframe.
- When the effect is stopped between keyframes, then inserting a keyframe does not change the effect duration.

Insertion before the first keyframe	
Insertion between two keyframes	
Insertion at a keyframe	
Insertion after the last keyframe	

Changes in effect duration and keyframe insertion position

Changes in Effect Duration Due to Keyframe Deletion

When you delete a keyframe, regardless of where the effect is stopped, the effect duration is always decreased by the duration of the deleted keyframe.

Deletion on the first keyframe	
Deletion on an intermediate keyframe	
Deletion between two keyframes	
Deletion on the last keyframe	

Keyframe deletion position and changes in effect duration

Delay Setting

To set the delay time

The delay time is the delay from the beginning of effect execution until the first keyframe, that is, until the effect proper begins. The delay is not included in the effect duration, which therefore does not change when you change the delay. Use the following procedure to change the delay time.

1 Press the EDIT ENBL button, turning it on.

2 Press the DELAY button.

3 Enter the numerical value in minutes, seconds and frames (mm.ss.ff) from the numeric keypad, and press the ENTER button.

For example, enter 0.1.15 to set a delay of 1 second and 15 frames.

Path Settings

These settings determine the way in which interpolation from one keyframe to the next is carried out, or in other words the nature of the path followed between keyframes.

Displaying the PATH Menu

Make the path settings for keyframes created on the switcher by using the SWER KF PATH menu. Make the path settings for keyframes created on the DME by using the DME KF PATH menu.

For details of the DME KF PATH menu, refer to the User's Guide of the DME.

To display the SWER KF PATH menu, use the following procedure.

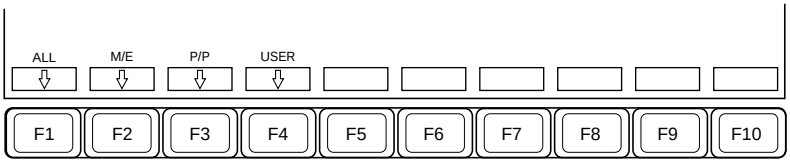
1 In the menu control section, press the KEYFRAME top menu button.

The KEYFRAME menu appears.

For details of the KEYFRAME menu display, see page 7-32.

2 Press F9 (SWER PATH).

The SWER KF PATH menu appears.



Function key indications in the SWER KF PATH menu

3 Stop the effect at the required edit point.

The setting applies to the transition from that keyframe to the next.

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4 Press one of F1 (ALL) to F4 (USER), to select the sub-register to which the settings apply.

For example, selecting F2 (M/E) allows you to make path settings separately for the items (KEY 1, KEY 2, WIPE, etc.) on the M/E bank. To make path settings for the whole M/E bank without separating items, press F1 (ALL).

Depending on the sub-register selection, different function key indications appear. For further details, read the following sections.

Basic Path Setting Operations

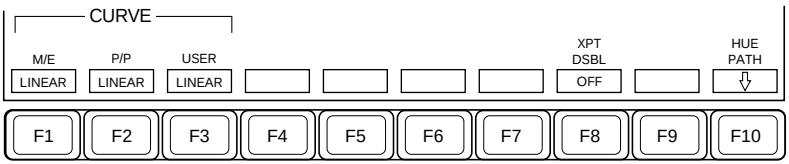
ALL settings

To set the path for all banks

Use the following procedure.

1 In the SWER KF PATH menu, press F1 (ALL).

The function key indications change as follows.



2 Press one of F1 (M/E) to F3 (USER) to select the curve path type for the corresponding bank.

Pressing each of F1 to F3 cycles through the following settings:

OFF: Make no change as the effect proceeds.

STEP: Change stepwise at each keyframe. In other words, there is no interpolation in the interval between keyframes.

LINEAR: Interpolate linearly between keyframes. This maintains a constant speed of movement.

(Continued)

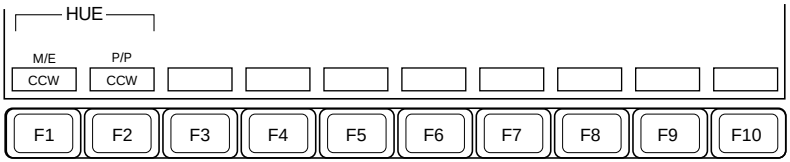
S-CURVE: Accelerate and decelerate around each keyframe, so that the speed is maximum at the mid-point between two keyframes.
SPLINE: Use a spline curve to provide a smooth interpolation.

The selected interpolation path type is shown on the menu display by an icon.

3 In order not to switch the input signals, set F8 (XPT DSBL) to “ON”.

4 Press F10 (HUE PATH).

The function key indications change as follows.



5 Press one of F1 (M/E) or F2 (P/P) to select the HUE path type for the corresponding bank.

Pressing F1 or F2 cycles through the following settings:
CW: The hue rotates clockwise as viewed on a Vectorscope.
CCW: The hue rotates counterclockwise as viewed on a Vectorscope.
LONG: The hue changes by the maximum amount. If there is no difference of hue between two keyframes, the hue rotates clockwise through 360 degrees.
SHORT: The hue changes by the minimum amount.

The selected hue interpolation curve is shown on the menu display by an icon.

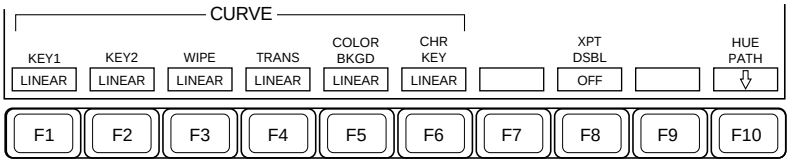
Path settings within the M/E bank or PGM/PST bank

To make path settings for individual items within the M/E bank or PGM/PST bank

For example, in the case of the M/E bank, use the following procedure. For the PGM/PST bank, use a corresponding procedure.

1 In the SWER KF PATH menu, press F2 (M/E).

The function key indications change as follows.
(F6 (CHR KEY) does not appear for the PGM/PST bank.)



2 Press one of F1 (KEY1) to F6 (CHR KEY) to select the corresponding curve path type.

Pressing each of F1 to F6 cycles through the settings in the order shown below. F1 (KEY1), F2 (KEY2), F4 (TRANS), and F6 (CHR KEY) cycle through four settings excluding “SPLINE”.

OFF → STEP → LINEAR → S-CURVE → SPLINE

The selected path type is shown on the menu display by an icon.

3 If you selected “SPLINE” in step **2**, adjust control knobs 1 to 3 as follows.

Knob	Parameter	Setting
1	Tension	Degree of tension between points (–4.000 to +4.000)
2	Bias	Degree of inclination of tangent at point (–4.000 to +4.000)
3	Continuity	Degree of continuity at point (–4.000 to +4.000)

4 Press F10 (HUE PATH), then select the HUE path type.

*For details, see steps **4** and **5** in the section “Setting the path for all banks” (previous page).*

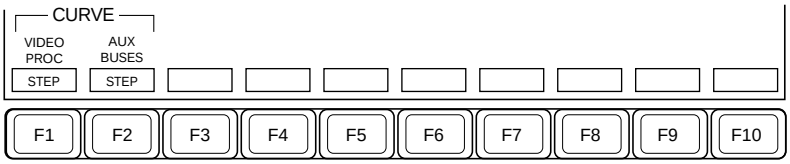
Path settings within the “USER” group

To make detailed settings for individual items within the “USER” group

Use the following procedure.

1 Press F5 (USER).

The function key indications change as follows.



2 Press the required one of F1 (VIDEO PROC) and F2 (AUX BUSES).

Every time you press the key, the path type selection toggles between OFF and STEP, causing the symbol for the selected path type to appear on the menu screen.

Executing and Saving Effects

Executing Effects

You can execute, or play back, the currently recalled effect, using either the RUN button or the fader lever, to obtain a continuous segment of video. Use the following procedures.

Note

For the following operations, first press and light the appropriate buttons for the sub-registers to which execution is to apply.

Execution with the fader lever (manual mode)

To execute the whole effect manually, move the fader lever smoothly from one end of its travel to the other.

- When the REV button is lit: the effect executes in the reverse direction.
- When the STOP NEXT KF button is lit: the effect stops at the next keyframe.
- When a pause time point is set: the effect executes up to the pause point.

To execute the effect up to an intermediate point, stop moving the fader lever at the intermediate point. If you then move the fader lever again, the effect resumes execution. By moving the fader lever in the reverse direction you can execute the effect in the reverse direction.

Execution with the RUN button (auto mode)

To execute the effect automatically, press the RUN button. If any of the REV, STOP NEXT KF, and PAUSE buttons are lit, the effect is the same as in manual mode.

To execute the effect up to an intermediate point, press the RUN button again during execution. Press the RUN button once more to resume execution.

Execution with a combination of the fader lever and the RUN button

Fader lever operation during execution in auto mode

If at an intermediate point of execution of an effect started by pressing the RUN button you operate the fader lever, when the fader lever reaches the position corresponding to the current position of the effect execution, the auto mode ends, the RUN button goes off, and the fader lever takes over control of the execution of the effect.

Execution in auto mode during fader lever operation

After executing part of the effect with the fader lever, if you stop moving the fader lever then press the RUN button, the effect execution resumes. At this point the effect duration setting applies to the duration of the whole effect. Therefore if set to 100 frames, for example, and if a portion of the effect corresponding to 25 frames has been executed with the fader lever, the remaining 75 frames are executed in auto mode.

Note

If you stop the fader lever in an intermediate position and complete the effect, the position of the fader lever no longer agrees with the current position of the effect. All the LEDs of the effect progress indicator either light or go off, and in this state the fader lever does not function. To use the fader lever again, first move it to either end of its travel.

Moving to the first keyframe of the effect

Press the REWIND button to move to the first keyframe of the effect.

Pausing an effect at a desired point – PAUSE

It is possible to set a pause point so that an effect always pauses at that point. To restart the paused effect, move the fader lever once again or press the RUN button. Only one pause point can be set within the duration of the effect.

When more than one sub-register is recalled, the effect execution follows the pause setting of the reference channel.

Note

A pause setting does not take effect if you start the effect by using an editor.

To set a pause point

Use the following procedure.

1 Stop the effect at the desired pause point.

2 In the KEYFRAME menu, press F5 (PAUSE).

The function key indication switches to reverse video, and the current position of the current effect is set as the pause point.

Thereafter, if you execute this effect by using the RUN button, it pauses at the set point.

To cancel the pause setting

Stop the effect at the pause point, then in the KEYFRAME menu, press F5 (PAUSE).
The function key indication reverts to normal video, and the pause point setting is canceled.

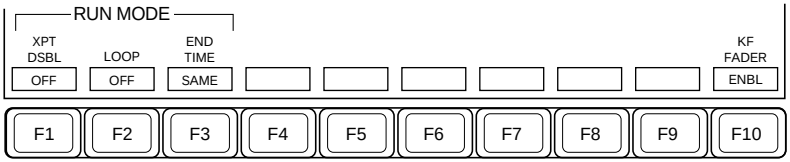
Run Mode Settings

To execute an effect repeatedly

To execute the same effect repeatedly, use the following procedure.

1 In the KEYFRAME menu *(see page 7-31)*, press F4 (RUN MODE).

The RUN MODE menu appears.



Function key indications in the RUN MODE menu

2 Set F2 (LOOP) to “ON”.

3 Press the RUN button to execute the effect.

The effect execution loops around from the last keyframe to the first keyframe, and repeats the effect indefinitely.
There is no interpolation between the last keyframe and the first keyframe. If the REV button is lit, the effect is repeated in the reverse direction.
To stop the repeated execution, set F2 (LOOP) to “OFF”, or press the REWIND button.

To execute an effect without cross-point changes

Keyframes normally include cross-point selection information, but if you set F1 (XPT DSBL) in the RUN MODE menu to “ON”, the effect is executed with the current input signal selection state unchanged.

Setting the execution timing of several channels

To operate according to the reference channel

When executing effects in a number of channels simultaneously, to carry out the operations of all channels according to the reference channel settings (STOP NEXT KF, NEXT KF, PREV KF, etc.), set F3 (END TIME) to "SAME".

Additionally, if the completion times on the channels are different, in this mode the effects on all channels will continue to be executed until the latest time. When the REV button is lit, execution starts from the channel with the latest completion time.

To operate the channels independently

When executing effects in a number of channels simultaneously, to carry out the operations of all channels independently of the reference channel, set F3 (END TIME) to "INDPND".

Additionally, if the completion times on the channels are different, in this mode the effects on all channels will continue to be executed until their respective times. When the REV button is lit, the channels start execution simultaneously, and finish in the order of increasing time.

Notes

- It is not possible to make switcher subregisters operate independently of each other even when F3 is set to "INDPND".
- In INDPND mode, even when completion times in different channels are different, moving the fader lever through its complete travel causes a simultaneous completion of execution, and the effect is thus different from that of using the RUN button.

To disable the keyframe fader lever

Setting F10 (KF FADER) to "DSBL" disables the keyframe fader lever.

Saving Effects

When you recall another effect, the current effect is automatically saved in the currently recalled register. In place of this automatic saving, it is also possible to save an effect in a specified register.

To save an effect in a specified register

Use the following procedure.

1 In the numeric keypad block, press the STORE/LEARN button, turning it on.

2 Enter the register number in which you wish to save the effect.

To save the effect in the first empty register after the currently recalled register, enter a period only.

3 Press the ENTER button.

This saves the current effect in the specified register.

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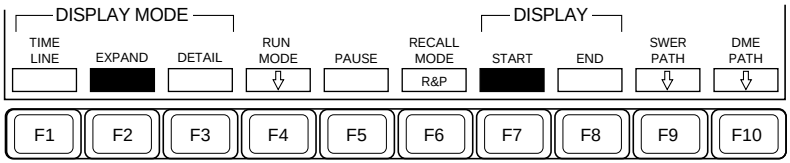
Displaying Effect Information

You can check the keyframe and effect state, using the menu screen.

Displaying the KEYFRAME menu

In the menu control section, press the KEYFRAME top menu button.

The KEYFRAME menu appears.



Function key indications in the KEYFRAME menu

For details of the following KEYFRAME menu functions, see the pages shown in parenthesis.
F4 (RUN MODE): page 7-28
F5 (PAUSE): page 7-27
F6 (RECALL MODE): page 7-33
F9 (SWER PATH): page 7-20
F10 (DME PATH): refer to the chapter about keyframe of the HZS-7040 User's Guide Volume 2, Volume 3, or HZDM-7020 User's Guide.

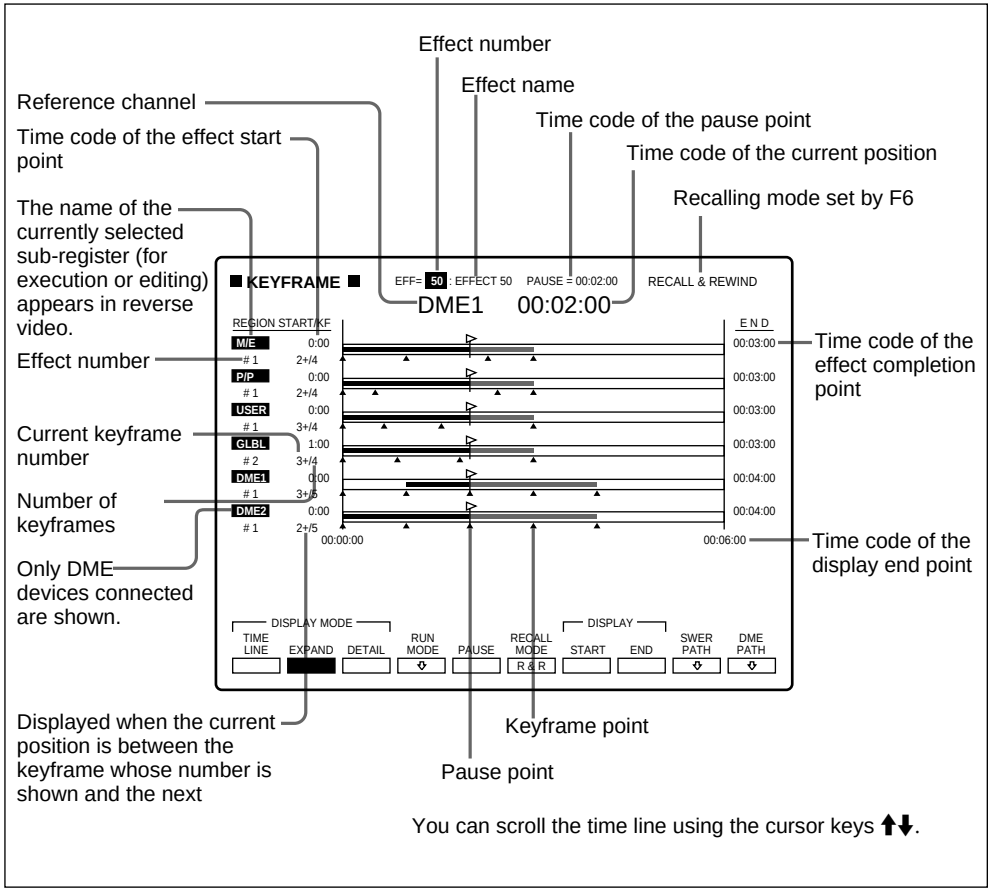
The following are some of the operations carried out in this menu.

Time line display

To display the time line screen

In the KEYFRAME menu, press F1 (TIME LINE).

This screen displays the state of the currently recalled effect, with a time line for each of the sub-registers or channels.



Example of KEYFRAME menu time line display

To enlarge the time line display

Use the following procedure.

1 In the KEYFRAME menu, press F2 (EXPAND).

F7 (START) and F8 (END) appear. *(See previous page.)*

2 Hold down F7 (START) and turn knob 4 to set the start point.

3 Hold down F8 (END) and turn knob 4 to set the end point.

Setting the mode in which an effect is recalled

When an effect is recalled, you can select whether or not the first keyframe image is reproduced.

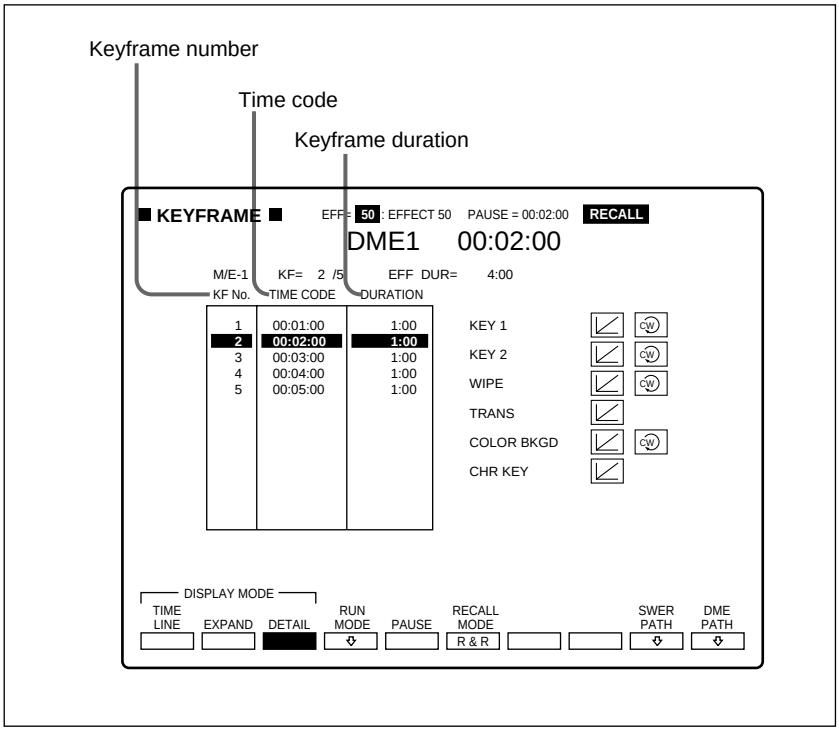
Pressing F6 (RECALL MODE) toggles between “RECALL” and “R & R” (“Recall & Rewind”) settings.

RECALL: At the moment at which the effect is recalled, the first keyframe is not reproduced.

R & R: At the moment at which the effect is recalled, the first keyframe is reproduced.

Displaying the detailed screen

Pressing F3 (DETAIL) displays the screen shown in the figure below. This screen gives detailed information for each keyframe on the reference sub-register.



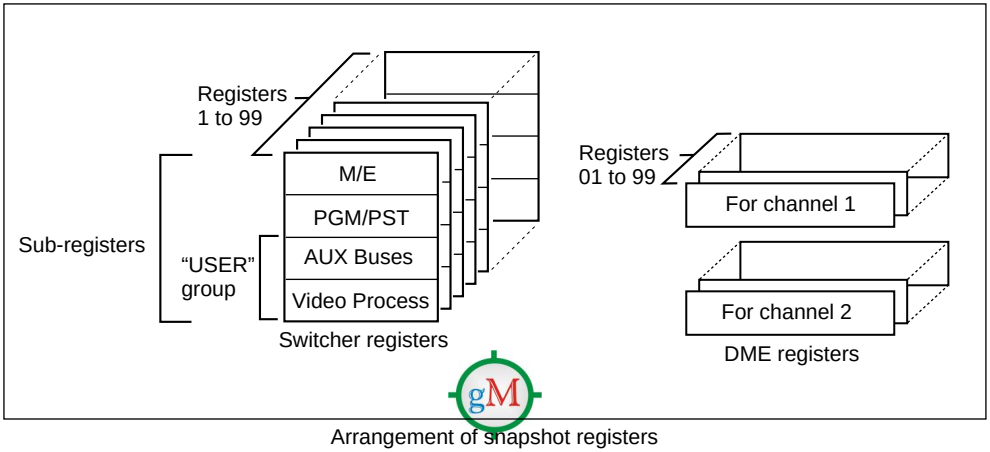
KEYFRAME menu (detailed screen)

Chapter 8
Registers

Overview 8-2
Functions Relating to Registers 8-3
Basic Register Operations 8-6
Manipulating Snapshot and Keyframe Effect Registers 8-7
Setting Snapshot Attributes 8-14
Selecting the Sub-Registers in the “USER” Group 8-16
Channel-to-Channel Copying of DME Registers 8-16
Displaying and Setting VTR Control Registers 8-18

Overview

Registers are areas of memory (RAM) in the switcher used to hold snapshots and keyframe effects; there are 99 registers for each of these purposes, numbered from 01 to 99. Each register is further divided into four sub-registers. The DME has 99 registers (01 to 99) each for snapshots and keyframe effects for each channel. The following schematic diagram shows the snapshot register arrangement.



Arrangement of snapshot registers

You can use the "USER" group to save and recall data pertaining to its constituent sub-registers.
For the snapshot registers, you can use the REGISTER menu to determine whether to contain the AUX Buses and Video Process sub-registers in the "USER" group.

For details of the data you can save in the different sub-registers of a snapshot register, see the section "Snapshots and Registers" (page 6-3).

Functions Relating to Registers

To carry out operations on registers, you use the REGISTER menu. This section describes the functions of the REGISTER menu.

Note

The REGISTER menu does not provide functions for manipulating the registers used to hold the DSK key snapshots controlled from the DSK control section.

Listing the registers

In the REGISTER menu, select item 1 (EFFECT) to display a list of the keyframe effect registers, and item 2 (SNAPSHOT) to display a list of the snapshot registers.

For an example register listing, see page 8-6.

Selecting item 3 (ATTRIB EDIT) or item 4 (CONFIG USER) displays the following information about the snapshot registers.

Registers used: The display shows which registers contain data (" * ") and which are empty (" – ").

Attributes: The snapshot registers can have a number of different attributes, indicated by the following abbreviations.

D: Effect dissolve
T: Auto transition
X: Cross-point disable
1 to 8: GPI output (number refers to GPI port)

For details of the attributes, see the section "Snapshot attributes" (page 6-4).

Write-protect setting: This shows whether the contents of a register can be overwritten or not. An "L" (for "Locked") is shown for a register whose contents connot be overwritten.

Register name: You can use the NAME function to set any desired register name.

Register manipulation functions

You can use the following functions to manipulate the data within registers. (It is not possible to apply these to separate switcher sub-registers, but you can manipulate DME channels separately.)

MOVE: Move the contents of one register to another.
SWAP: Swap the contents of two registers. It is not possible to apply this operation to the DME.
COPY: Copy the contents of one register to another.
DELETE: Delete the contents of a register.
NAME: Assign a name to a register.
MERGE: Append ("merge") the contents of another register to the end of the currently selected register. This function is only available for keyframe registers.
LOCK: Prohibit overwriting and deleting data in a register.
UNLOCK: Unlock a register.

You can also apply the MOVE, SWAP, COPY, DELETE, LOCK and UNLOCK functions to contiguous blocks of registers.

Setting snapshot attributes

You can change the attributes applied when a snapshot is saved in or recalled from a register, and can also apply GPI output attributes.

Selecting the sub-registers in the "USER" group

For the snapshot registers, you can determine whether to contain the AUX Buses and Video Process sub-registers in the "USER" group.
Regardless of this setting, for the register manipulation functions, the "USER" group always includes both of these two sub-registers.
Again, for keyframe registers, the "USER" group always includes both of these two sub-registers.

Copying DME registers between channels

You can copy the contents of a DME register from one channel to another. When using the HKDS-7061 Video Modifier Board, only the effects supported by the HKDS-7061 can be copied between DME 1 and DME 2.

For the operating procedure, see page 8-16.

Displaying and setting VTR control registers

For VTRs (a maximum of two) connected to the control panel, you can save and recall sets of data including the start point, stop point, and start offset point (the time from pressing the RUN button in the keyframe section until the VTR starts), in the same way as a keyframe effect.
Here the registers in which this data is saved are termed “VTR control registers.”
In the REGISTER menu, you can display the contents of VTR control registers. You can also enter a timecode value from the numeric keypad, and set the contents of a register.

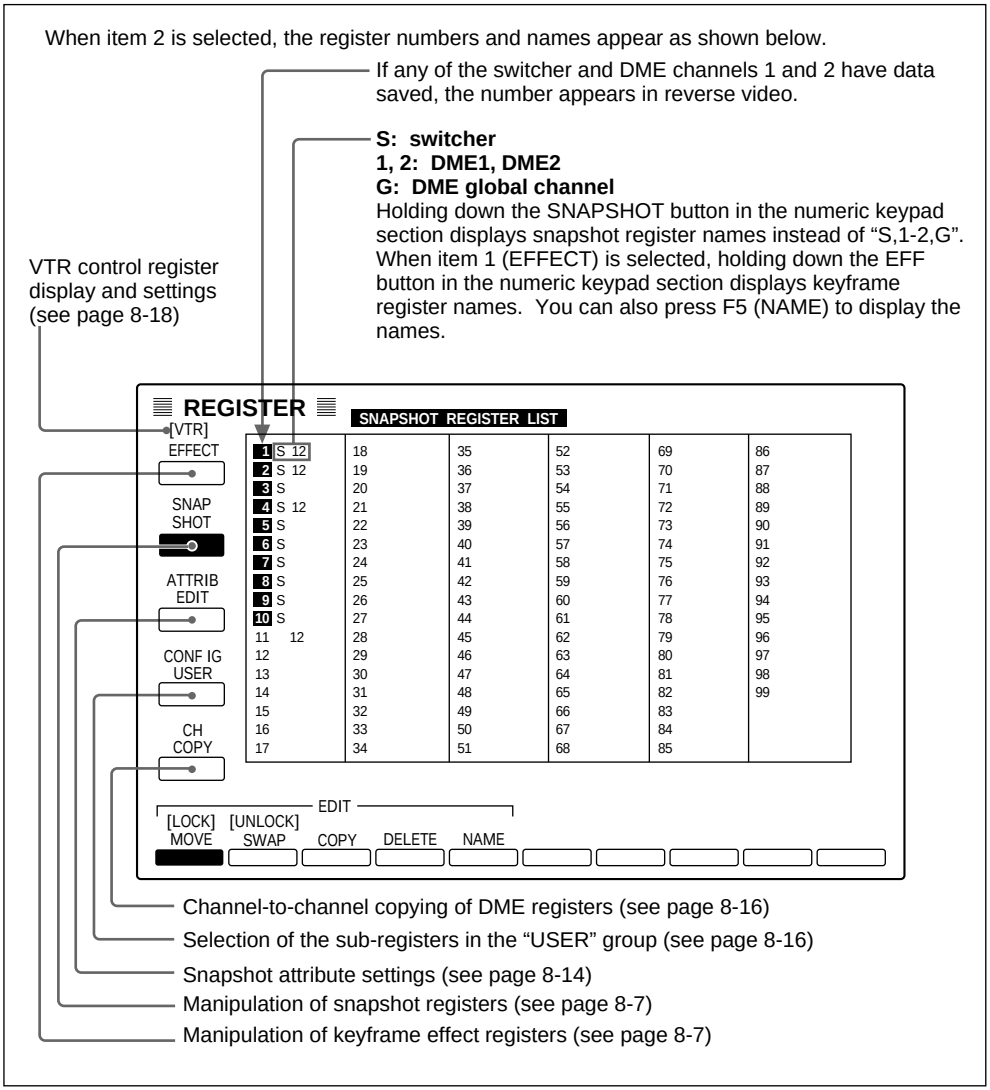
For the operating procedure, see page 8-18.

Basic Register Operations

This section describes the basic register operations carried out from the REGISTER menu.

Accessing the REGISTER menu

To access the REGISTER menu, press the REGS top menu button in the SYSTEM group of the menu control section.


When item 2 is selected, the register numbers and names appear as shown below.
If any of the switcher and DME channels 1 and 2 have data saved, the number appears in reverse video.
S: switcher
1, 2: DME1, DME2
G: DME global channel
Holding down the SNAPSHOT button in the numeric keypad section displays snapshot register names instead of "S,1-2,G". When item 1 (EFFECT) is selected, holding down the EFF button in the numeric keypad section displays keyframe register names. You can also press F5 (NAME) to display the names.
VTR control register display and settings (see page 8-18)
REGISTER
SNAPSHOT REGISTER LIST
[VTR]
EFFECT
SNAP SHOT
ATTRIB EDIT
CONF IG USER
CH COPY
EDIT
[LOCK] MOVE
[UNLOCK] SWAP
COPY
DELETE
NAME
Channel-to-channel copying of DME registers (see page 8-16)
Selection of the sub-registers in the "USER" group (see page 8-16)
Snapshot attribute settings (see page 8-14)
Manipulation of snapshot registers (see page 8-7)
Manipulation of keyframe effect registers (see page 8-7)

Example of REGISTER menu display

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Manipulating Snapshot and Keyframe Effect Registers

This section describes how to manipulate snapshot and keyframe effect registers, and how to apply a name to a register.

Selecting the channels to which operations apply

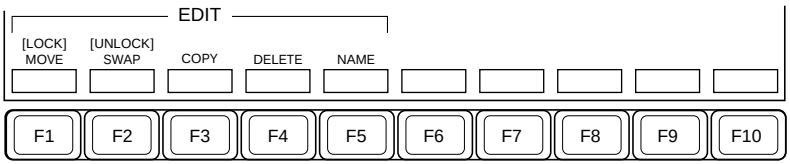
When manipulating registers, with the EFF button or SNAPSHOT button in the numeric keypad section lit, it is necessary to press the sub-register selection buttons, and select the channels to which the manipulations apply. However, for the switcher it is not possible to carry out operations on individual sub-registers. If one or more of the four buttons (M/E, P/P DSK, and USER) is lit, all of switcher registers are selected.
The following operations assume that the objects to which the manipulations apply have already been selected.

Carrying out move, swap, copy, delete, lock and unlock operations

To carry out move, swap, copy, delete, lock and unlock operations on registers, use the following procedure.

1 In the REGISTER menu, select either of the following items, depending on the type of register you wish to operate on.
Item 1 (EFFECT): keyframe effect registers
Item 2 (SNAPSHOT): snapshot registers

Depending on the item you select, the EFFECT or SNAPSHOT menu appears.



Function key indications in the EFFECT and SNAPSHOT menus

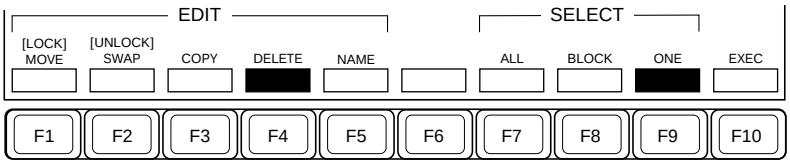
The EFFECT menu also shows F6 (MERGE), the function for combining two keyframe effect registers.

(Continued)

2 Press one of F1 to F4, according to the operation you wish to carry out, turning it on.

F1 (MOVE): Move the contents of one register to another.
F2 (SWAP): Swap the contents of two registers.
F3 (COPY): Copy the contents of one register to another.
F4 (DELETE): Delete the contents of a register.
F11 (LOCK)(Press F1 while holding down the SHIFT button): Lock a register.
F12 (UNLOCK)(Press F2 while holding down the SHIFT button): Unlock a register.

Function key indications for F7 to F10 now appear.



The F7 (ALL) indication only appears when you selected F4 (DELETE), F11 (LOCK), F12 (UNLOCK) or, to apply a name to a register, F5 (NAME).

For details of the procedure for applying a name to a register using F5 (NAME), see page 8-11.

3 Press one of F7 to F9 to select the way in which you specify the register or registers to which the operation applies.

F7 (ALL): Specify all registers.
F8 (BLOCK): Specify a block of contiguous registers.
F9 (ONE): Specify a single register.

- If you pressed F7 (ALL), proceed to step **6**.
- If you pressed F8 (BLOCK) or F9 (ONE), the register number input position switches to reverse video, and for move, swap and copy operations, “FROM” and “TO” also appear. In this case continue to step **4**.

4 Depending on the operation you are carrying out, enter a register number using the numeric keypad (using the numeric keys, then pressing the ENTER button) as shown in the following table.

Operation	Register number	Input position
Move	Register whose contents are to be moved	Reverse video position to the right of "FROM"
Swap	One of the registers to be swapped	
Copy	Register whose contents are to be copied	
Lock	Register to be locked	Reverse video position
Unlock	Register to be unlocked	
Delete	Register whose contents are to be deleted	

- If in step **3** you pressed F8 (BLOCK), enter the first and last registers in the block of registers to which the operation applies.
- After pressing the ENTER button to confirm the setting, continue to step **5** for a move, copy or swap, and skip to step **6** for a lock, unlock or delete operation.

5 Enter the number of the destination register for a copy or move, or the other register in a swap, in the reverse video position to the right of "TO", using the numeric keypad.
If in step **3** you pressed F8 (BLOCK), enter the first register number only.

6 Press F10 (EXEC).

The function key indications change, and F9 (YES) and F10 (NO) functions appear.

7 Press F9 (YES).

This carries out the required operation.

To abandon carrying out the operation
Press F10 (NO).

Deleting individual sub-registers not in the “USER” group from snapshot registers

For snapshot registers, by using the following operation you can delete the data of individual M/E and PGM/PST sub-registers.

1 In the REGISTER menu, select item 3 (ATTRIB EDIT).

The ATTRIB EDIT menu appears.

2 Use the cursor movement buttons (↑ ↓ ← →) to align the cursor with the sub-register you wish to delete.

3 Hold down the SHIFT button and press F10 (CLEAR).

Assigning a name to a register

Use the following procedure to assign a name to a register.

1 In the REGISTER menu, select either of the following items, depending on the type of register you wish to name.

Item 1 (EFFECT): keyframe effect registers
Item 2 (SNAPSHOT): snapshot registers

Depending on the item you select, the EFFECT or SNAPSHOT menu appears.

2 Press F5 (NAME), turning it on.

Function key indications for F7 to F10 now appear.

3 Press one of F7 to F9 to select whether to apply a name to one or more registers.

F7 (ALL): Apply the same name to all registers.
F8 (BLOCK): Apply a name to a block of contiguous registers.
F9 (ONE): Apply a name to a single register.

- If you pressed F7 (ALL), proceed to step **5**.
- If you pressed F8 (BLOCK) or F9 (ONE), the register number input position switches to reverse video. In this case continue to step **4**.

4 Enter the number of the register to which you wish to assign a name, using the numeric keypad.
If in step **3** you pressed F8 (BLOCK), enter the first and last registers in the block of registers to which you wish to apply the name.

5 Press F10 (EXEC).

The function key indications change, and a text input screen appears.

(Continued)

6 Using the keyboard displayed on the screen and the numeric keys in the numeric keypad section, enter a name of up to eight characters, and press the F9 (ENTER) or the ENTER button in the numeric keypad section to confirm the name.

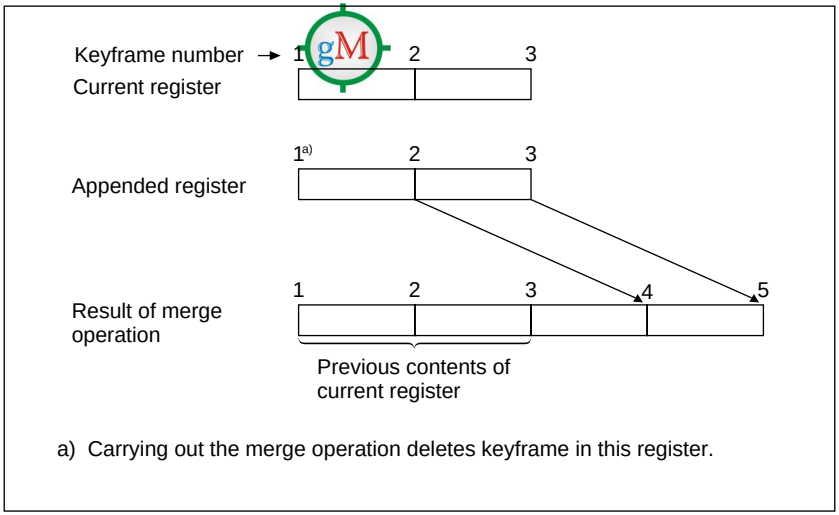
This assigns the name to the register.

For details of the input method, see page 3-10.

Combining keyframe effects with the merge function

Note

The merge function allows you to append the contents of one keyframe effect register to the current register. The first keyframe of the appended register is overlaid by the last keyframe of the current register, and disappears. It is therefore important to ensure that these two keyframes are the same before applying the merge function.

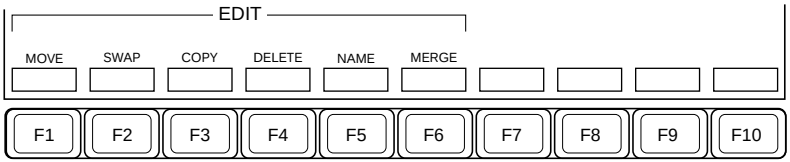


Merge function for two keyframe effect registers

To combine two keyframe effect registers the merge function, use the following procedure.

1 In the REGISTER menu, select item 1 (EFFECT).

The EFFECT menu appears.



Function key indications in the EFFECT menu

2 Press F6 (MERGE), turning it on.

Function key indication “EXEC” for F10 now appears.

3 Enter the number of the register which you wish to append to the end of the current register, using the numeric keypad.

The current register number is specified automatically, and there is no need to enter it.

4 Press F10 (EXEC).

The function key indications change, and F9 (YES) and F10 (NO) functions appear.

5 Press F9 (YES).

This carries out the merge.

To abandon the merge
Press F10 (NO).

Setting Snapshot Attributes

Except for the GPI output attributes, you can apply attributes to a snapshot when saving or recalling the snapshot. In the REGISTER menu you can set these attributes separately for different sub-registers.

Since the sub-registers within the "USER" group are saved and recalled together, it is not possible to make separate attribute settings for them, except that this is possible when using the REGISTER menu.

In the REGISTER menu, you can apply GPI output attributes, but in this case the attributes apply to the whole register, and it is not possible to make separate settings for sub-registers.

Setting attributes

To set an attribute other than a GPI output attribute, use the following procedure.

1 In the REGISTER menu, select item 3 (ATTRIB EDIT).

The ATTRIB EDIT menu appears, and a cursor appears over the list of registers. The function key indications in the ATTRIB EDIT menu depend on where the cursor lies in the list of registers.

The list of registers is divided into three pages: page 1/3 shows information relating to the M/E and PGM/PST sub-registers, page 2/3 shows information relating to sub-registers in the "USER" group, and page 3/3 shows DME information.
To switch among the three pages, use the cursor movement button (← or →) to move the cursor to the right or left edge of the current page, then press the cursor movement button once more.

2 Use the cursor movement buttons (↑ ↓ ← →) to align the cursor with the sub-register for which you wish to make the setting.

The function key indications change according to the sub-register selected with the cursor.

3 Press the function key for the attribute you wish to change.

- To display the attributes of a routing switcher controlled by this switcher, press F9 (EXT) to display the setting menu, then press the cursor movement buttons (←, →) to align the cursor with the bus for the routing switcher whose attributes you wish to change, and press F7 (XPT DISABLE).
- To attach the dissolve attribute to a DME snapshot, press F6 (DURATION) and enter the dissolve duration from the numeric keypad.

Setting a GPI output attribute

To set a GPI output attribute, use the following procedure.

1 Use the cursor movement buttons (↑ ↓ ← →) to align the cursor with the "GPI" column of the register to which you wish to apply the GPI output attribute.

Function key indications for GPI output setting appear.

2 Press F1 to F8 to select the corresponding GPI port to apply the GPI output attribute. To delete a setting, press F9 (OFF).

Selecting the Sub-Registers in the “USER” Group

To select the sub-registers in the “USER” group, use the following procedure.

1 In the REGISTER menu, select item 4 (CONFIG USER).

The function key indications change to correspond to the sub-registers which can be included in the “USER” group.

2 Use F3 or F4 to select the sub-registers in the “USER” group.
The sub-registers selected are shown in reverse video.

F3 (VIDEO PROC): video process, color correction buses 1 and 2
F4 (AUX BUSES): auxiliary buses 1 to 5, edit preview bus, and destinations for the routing switcher to be controlled via the BKDS-7700 Tally Interface Unit

Channel-to-Channel Copying of DME Registers

To copy DME registers from one channel to another, use the following procedure.
Only the effects supported by the HKDS-7061 can be copied.

1 In the REGISTER menu, select item 5 (CH COPY).

A menu for the channel-to-channel copy appears.

2 Depending on what you wish to copy, press one of F1 to F3, turning it on (reverse video).

F1 (EFFECT): keyframe effect registers
F2 (SNAPSHOT): snapshot registers
F**3 (SETUP):** currently used setup data

3 Press F4 (FROM CH), to select the source DME channel.

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4 Press F6 (TO CH), to select the destination DME channel.

- If in step **2** you selected F1 (EFFECT) or F2 (SNAPSHOT), proceed to step **5**.
- If in step **2** you selected F3 (SETUP), skip to step **8**.

5 Depending on how you wish to select the register or registers to be copied, press one of F7 to F9.

F7 (ALL): Specify all registers.
F8 (BLOCK): Specify a block of registers.
F9 (ONE): Specify a single register.

- If you pressed F7 (ALL), skip to step **8**.
- If you pressed F8 (BLOCK) or F9 (ONE), the register number input area switches to reverse video, and "FROM" and "TO" are displayed. In this case proceed to step **6**.

6 Enter the source register number in the position to the right of "FROM", using the numeric keypad, then press the ENTER button.
If in step **5** you pressed the F8 (BLOCK) button, first enter the number of the first register in the block (the reverse video area moves to the right of the "—"), then enter the last register number.

7 Enter the destination register number in the reverse video area to the right of "TO".
If in step **5** you pressed the F8 (BLOCK) button, enter the number of the first destination register.

8 Press F10 (EXEC).

The function key indications change, and F9 (YES) and F10 (NO) functions appear.

9 Press F9 (YES).

This carries out the copy.

To cancel the copy operation
Press F10 (NO).

Displaying and Setting VTR Control Registers

To set a VTR control register, use the following procedure.

1 In the REGISTER menu, hold down the SHIFT button (the indication for item 1 changes to “VTR”), and select item 1 (VTR).

This displays the VTR control register menu.

2 Using the cursor movement buttons (↑ ↓ ← →), move the cursor to the item you want to change.

3 Press F3 (TC INPT), then enter a timecode value from the numeric keypad, and press the ENTER button.

Chapter 9
Floppy Disk Operations

Overview 9-2
Disks and Data Held 9-2
Disk Functions 9-3
Disk Operations 9-4

Overview

You can use the floppy disk drive to save the contents of registers and setup data, for reloading when required.
This chapter describes the procedures for saving and loading data, and other floppy disk operations.

Disks and Data Held

The floppy disk drive uses 3.5" 2HD disks. The term “disk” here always refers to this type of disk.
It is possible to save to disk the following types of data created on the switcher:
• Contents of keyframe effect registers
• Contents of snapshot registers
• The current values of the setup data
• Key memory data (including default values)
• Chroma key memory data
• Contents of DSK key snapshot registers
• Current setup data related with control panel operations
• Contents of VTR control registers
For the location of the floppy disk drive, see the section “Menu Control Section and Floppy Disk Drive” *(page 2-14).*

Notes

• For DSK snapshots, it is only possible to save the complete set of the particular snapshot type in one operation.
The key memory data can only be saved as a complete set, that is, all key memory data for all keyers together.
• For switcher data it is not possible to carry out operations on individual sub-registers.

To save DME data

There are three types of DME data saved on disk:
• Keyframe effect register data
• Snapshot register data
• Currently used setup data
It is also possible to load and save data for each DME channel separately.

Disk Functions

The following disk operations are provided by the system.

SAVE: Transferring register contents or the current setup data to files on the floppy disk.
One floppy disk can hold up to 99 files containing snapshot or keyframe effect register contents, or up to four files of setup data, key memory data, chroma key memory data, DSK snapshots, setup data related with control panel operations, or VTR control data.

LOAD: Loading data from the floppy disk.
- Loading a snapshot, keyframe effect, DSK key snapshot or VTR control data file transfers the data to a register.
- Loading a key memory file or chroma key memory file overwrites the current key memory contents.
- Loading a setup data file or control panel setup data file sets up the system according to the settings in the file.

COPY: Copying a file on the same disk.

DELETE: Deleting a file.

RENAME: Attaching a name to a file on the disk.

FORMAT: Formatting a disk for use.

LABEL: Attaching a label to the disk.

The SAVE, LOAD, COPY and DELETE functions can also be applied to a block of consecutive registers or files.

Notes

- It is necessary to format a new disk before using it.
- Carrying out a RENAME operation applies the same name to all files of the same number, even on different channels.

Disk Operations

To carry out disk operations, first access the DISK menu, then depending on the type of data you wish to carry out operations on, access the EFFECT, SNAPSHOT, SETUP, MISC, UTILITY, or VTR menu from the DISK menu. This section first describes how to access the DISK menu and gives an example of the DISK menu display, then describes the disk operations in the following four groups, according to the type of data being handled.

Data handled by disk operations in the EFFECT and SNAPSHOT menus

- Keyframe effect data (EFFECT menu)
- Snapshot data (SNAPSHOT menu)

Data handled by disk operations in the SETUP and MISC menus

- The current setup data (SETUP menu)
- Key memory data (SETUP menu)
  Saving or loading the key memory data also saves or loads the default values.
- Chroma key memory data (SETUP menu)
- Contents of DSK key snapshot registers (MISC menu)

Data handled by disk operations in the UTILITY menu

- Current setup data related with control panel operations
- All types of data that can be handled by disk operations

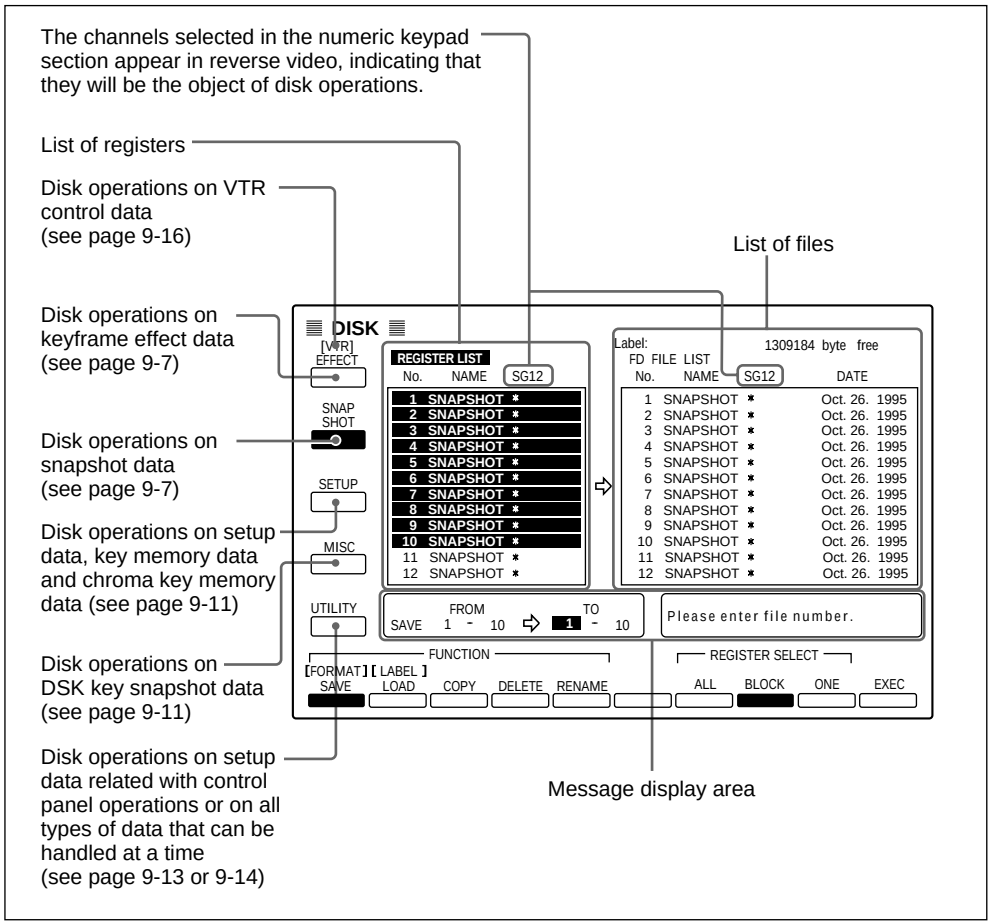
Data handled by disk operations in the VTR menu

- VTR control data

The following description assumes that a floppy disk is already present in the drive.

Accessing the DISK menu

Press the DISK top menu button in the menu control section.
The DISK menu appears as follows.


The channels selected in the numeric keypad section appear in reverse video, indicating that they will be the object of disk operations.
List of registers
Disk operations on VTR control data (see page 9-16)
List of files
Disk operations on keyframe effect data (see page 9-7)
Disk operations on snapshot data (see page 9-7)
Disk operations on setup data, key memory data and chroma key memory data (see page 9-11)
Disk operations on DSK key snapshot data (see page 9-11)
Disk operations on setup data related with control panel operations or on all types of data that can be handled at a time (see page 9-13 or 9-14)
Message display area
DISK
[VTR]
EFFECT
SNAP SHOT
SETUP
MISC
UTILITY
REGISTER LIST
No. NAME SG12
1 SNAPSHOT *
2 SNAPSHOT *
3 SNAPSHOT *
4 SNAPSHOT *
5 SNAPSHOT *
6 SNAPSHOT *
7 SNAPSHOT *
8 SNAPSHOT *
9 SNAPSHOT *
10 SNAPSHOT *
11 SNAPSHOT *
12 SNAPSHOT *
Label:
1309184 byte free
FD FILE LIST
No. NAME SG12 DATE
1 SNAPSHOT * Oct. 26. 1995
2 SNAPSHOT * Oct. 26. 1995
3 SNAPSHOT * Oct. 26. 1995
4 SNAPSHOT * Oct. 26. 1995
5 SNAPSHOT * Oct. 26. 1995
6 SNAPSHOT * Oct. 26. 1995
7 SNAPSHOT * Oct. 26. 1995
8 SNAPSHOT * Oct. 26. 1995
9 SNAPSHOT * Oct. 26. 1995
10 SNAPSHOT * Oct. 26. 1995
11 SNAPSHOT * Oct. 26. 1995
12 SNAPSHOT * Oct. 26. 1995
SAVE FROM 1 - 10 TO 1 - 10
Please enter file number.
FUNCTION
[FORMAT] [LABEL]
SAVE LOAD COPY DELETE RENAME
REGISTER SELECT
ALL BLOCK ONE EXEC

Example of DISK menu display

Note

If you remove the floppy disk from the drive while the DISK menu is displayed, it is necessary to redisplay the list of files. After inserting a disk, always press one of the item selection buttons 1 to 4 to select the list of files to be displayed.

Selecting the channels to which operations apply

You can apply disk operations to the data of more than one channel at a time. The FORMAT and LABEL functions, however, do not require a channel specification. The RENAME operation applies the same name to all files of the same number, even on different channels; there is therefore again no need to make a channel specification.

To select the channels to which operations apply, with the EFF button or SNAPSHOT button in the numeric keypad section lit, press the sub-register selection buttons.

However, for the switcher it is not possible to carry out operations on individual sub-registers. If one or more of the three buttons (M/E, P/P DSK, and USER) is lit, all of switcher registers are selected.

The following operations assume that the objects to which the manipulations apply have already been selected.

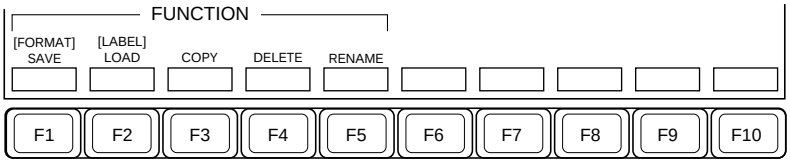
Disk operations on keyframe effect and snapshot data

To carry out a disk operation on keyframe effect or snapshot data, use the following procedure.

1 In the DISK menu, select either of the following items, depending on the type of data you wish to operate on.

Item 1 (EFFECT): keyframe effect data
Item 2 (SNAPSHOT): snapshot data

Depending on the item you select, the EFFECT or SNAPSHOT menu appears.



Function key indications in the EFFECT and SNAPSHOT menus

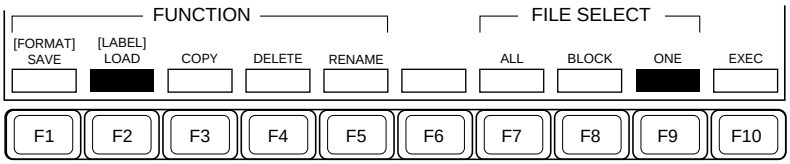
If you first wish to format a disk or apply a label to the disk
Use the procedure in the next item, "To format a disk and apply a label to a disk" *(page 9-10)*.

2 Press one of F1 to F5 according to the operation you wish to carry out, turning it on.

F1 (SAVE): Save the contents of a keyframe effect or snapshot register to the disk.
F2 (LOAD): Load the contents of a keyframe effect or snapshot file on the disk into a register.
F3 (COPY): Copy the contents of a keyframe effect or snapshot file to another file on the same disk.
F4 (DELETE): Delete a keyframe effect or snapshot file.
F5 (RENAME): Apply a name to a keyframe effect or snapshot file.

(Continued)

Function key indications for F7 to F10 now appear. (If you selected F3 (COPY), the indication for F7 (ALL) does not appear.)



Function key indications after selecting one of F1 to F5

3 Press one of F7 to F9 to select the way in which you specify the registers or files to which the operation applies.

F7 (ALL): Specify all registers or files.
F8 (BLOCK): Specify a block of contiguous registers or files.
F9 (ONE): Specify a single register or file.

- If you pressed F7 (ALL), proceed to step **6**.
  When you select F7 (ALL), a save or load operation transfers the contents of each register to the same numbered file or vice versa.
- If you pressed F8 (BLOCK) or F9 (ONE), the input position for the register or file number switches to reverse video, and for save, load and copy operations, “FROM” (source) and “TO” (destination) also appear. In this case continue to step **4**.

4 Depending on the operation you are carrying out, enter a register or file number, as shown in the following table, in the reverse video position using the numeric keypad, then press the ENTER button.

Operation	Register or file to be specified
Save	Register whose contents are to be saved
Load	File to be loaded
Copy	File to be copied
Delete	File to be deleted
Applying a name to a file	File to which the name is to be applied

- If you pressed F8 (BLOCK) in step **3**, enter the first register or file number, and then the last register or file number in the block of registers or files to which the operation applies.
- After pressing the ENTER button to confirm the setting, continue to step **5** for a save, load, or copy, and skip to step **6** for a delete or file naming operation.

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5 In a similar way to step **4**, enter the number of the register or file, as shown in the following table, in the reverse video position using the numeric keypad, then press the ENTER button.

Operation	Register or file to be specified
Save	Destination file
Load	Destination register
Copy	Destination file

If you pressed F8 (BLOCK) in step **3**, enter the first destination register or file number only.

6 Press F10 (EXEC).

- If you selected F5 (RENAME) in step **2**, the function key indications change, and a text input screen appears. In this case, go to step **8**.
- In other cases, the function key indications change, and functions keys F9 (YES) and F10 (NO) appear. In this case continue to step **7**.

7 To execute the operation, press F9 (YES).

To abandon carrying out the operation
Press F10 (NO).

8 Using the keyboard displayed on the screen and the numeric keys in the numeric keypad section, enter a name of up to eight characters, and press F9 (ENTER) or the ENTER button in the numeric keypad section to confirm the name.

If you selected F7 (ALL) in step **3**, this applies the same name to all files, and if you selected F8 (BLOCK), it applies the same name to all files in the block.

For details of the input method, see page 3-10.

To format a disk and apply a label to a disk

Use the following procedure.

1 In the menu display obtained in step **1** of the previous procedure (the section “Disk operations on keyframe effect and snapshot data”), press F11 or F12 to select the operation you wish to carry out.

F11 (FORMAT) (hold down the SHIFT button and press F1):
Format the disk.
F12 (LABEL) (hold down the SHIFT button and press F2):
Apply a label to the disk.

Note

Formatting a disk destroys any data already stored on the disk. Check carefully that existing data is not required before reformatting a disk which you have previously used.

2 Press F10 (EXEC).

- If you selected F11 (FORMAT) in step **1**, the function key indications change, and function keys F9 (YES) and F10 (NO) appear. In this case go to step **3**.
- If you selected F12 (LABEL) in step **1**, the function key indications change, and a text input screen appears. In this case go to step **4**.

3 To carry out formatting, press F9 (YES).

To abandon carrying out the formatting
Press F10 (NO).

4 Using the keyboard displayed on the screen and the numeric keys in the numeric keypad section, enter a label of up to eight characters, and press F9 (ENTER) or the ENTER button in the numeric keypad section to confirm the name.

For details of the input method, see page 3-10.

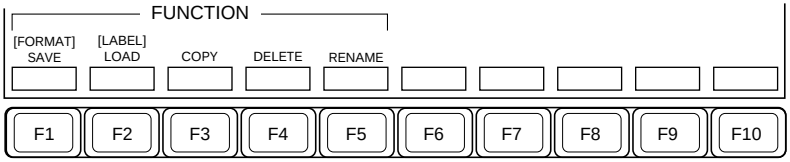
Disk operations on setup, key memory, chroma key memory, and DSK snapshot data

To carry out a disk operation on any of these data types, use the following procedure.

1 In the DISK menu, select either of the following items depending on the type of data you wish to operate on.

Item 3 (SETUP): setup data, key memory data, and chroma key memory data
Item 4 (MISC): DSK snapshot data

Depending on the item you select, the SETUP or MISC menu appears.



Function key indications in the SETUP and MISC menus

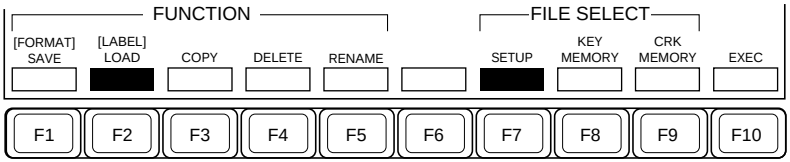
If you first wish to format a disk or apply a label to the disk
Use the procedure in the item, "To format a disk and apply a label to a disk" *(page 9-10)*.

2 Press one of F1 to F5 according to the operation you wish to carry out, turning it on.

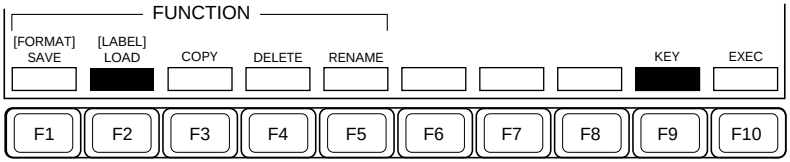
F1 (SAVE): Save data to the disk.
F2 (LOAD): Load the contents of a data file from the disk.
F3 (COPY): Copy the contents of a data file to another file on the same disk.
F4 (DELETE): Delete a data file.
F5 (RENAME): Apply a name to a data file.

(Continued)

The function key indications change as follows.



Function key indications after selecting item 3 (SETUP) in step **1**



Function key indications after selecting 4 (MISC) in step **1**

3 Depending on the operation you are carrying out, enter a file number (or file numbers for a copy operation), as shown in the following table, in the reverse video position using the numeric keypad, then press the ENTER button.

Operation	**File to be specified**
Save	File in which the data is to be saved
Load	File to be loaded
Copy	**1** Source file (FROM) for the copy **2** Destination file (TO) for the copy
Delete	File to be deleted
Applying a name to a file	File to which the name is to be applied

4 Press F10 (EXEC).

- If you selected F5 (RENAME) in step **2**, the function key indications change, and a text input screen appears. In this case go to step **6**.
- In other cases, the function key indications change, and function keys F9 (YES) and F10 (NO) appear. In this case continue to step **5**.

5 To carry out the operation, press F9 (YES).

To abandon carrying out the operation
Press F10 (NO).

6 Using the keyboard displayed on the screen and the numeric keys in the numeric keypad section, enter a name of up to eight characters, and press F9 (ENTER) or the ENTER button in the numeric keypad section to confirm the name.

For details of the input method, see page 3-10.

Disk operations on setup data related with control panel operations

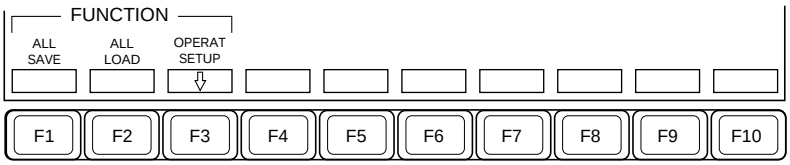
It is possible to carry out disk operations selecting only the setup data related with control panel operations. Such data (control panel setup data) comprises the data that has been set using the following menus.

- OPERATION MODE menu
- PANEL ENABLE menu
- TRACK BALL menu
- UTILITY menu
- SHOTBOX menu

To carry out a disk operation on the control panel setup data, use the following procedure.

1 In the DISK menu, select item 5 (UTILITY).

The UTILITY menu appears.

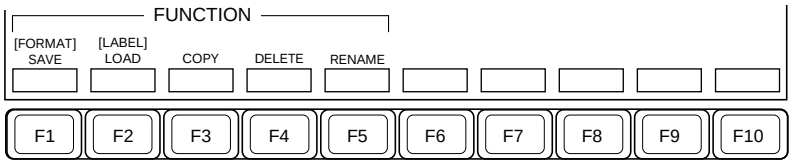


Function key indications in the UTILITY menu

(Continued)

2 Press F3 (OPERAT SETUP).

The OPERATION SETUP menu appears.



Function key indications in the OPERATION SETUP menu

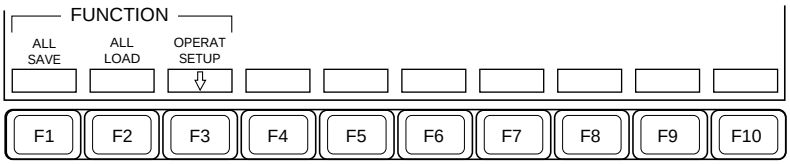
*For the subsequent operating procedure, see steps **2** to **6** of the procedure described in the section "Disk operations on setup, key memory, chroma key memory, and DSK snapshot data" on page 9-11.*

Disk operations on all types of data that can be handled

To save all selected types of data that can be handled by disk operations at a time or to load such data from a disk at a time, use the following procedure.

1 In the DISK menu, select item 5 (UTILITY).

The UTILITY menu appears.

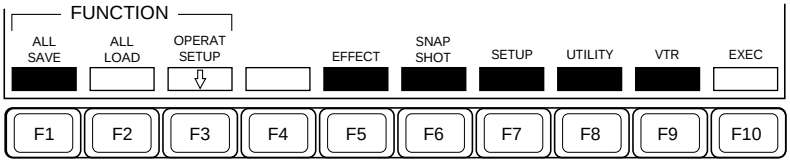


Function key indications in the UTILITY menu

2 Press F1 or F2 according to the operation you wish to carry out, turning it on.

F1 (ALL SAVE): Save all selected types of data to a disk at a time.
F2 (ALL LOAD): Load all selected types of data from a disk at a time.

The function key indications change as follows.



Function key indications after selecting F1 (ALL SAVE)

3 Press one or more of F5 (EFFECT) to F9 (VTR) to select the data you wish to save or load.

4 If you pressed F7 (SETUP) to F9 (VTR) in step **3**, enter the required file numbers and press the ENTER button.
For the other types of data, the source register numbers are automatically assigned as the file numbers for saving or the source file numbers are automatically assigned as the register numbers for loading.

5 Press F10 (EXEC)

The function key indications change, and function keys F9 (YES) and F10 (NO) appear.

6 To carry out the operation, press F9 (YES).

The data selected in step **3** is saved or loaded in the following order.

SETUP→MISC→EFFECT→SNAPSHOT→VTR

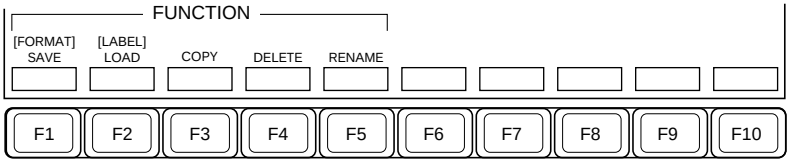
To abandon carrying out the operation
Press F10 (NO).

Disk operations on VTR control data

To carry out a disk operation on the VTR control data, use the following procedure.

In the DISK menu, hold down the SHIFT button (item 1 changes to “VTR”), then select item 1.

The VTR menu appears.



Function key indications in the VTR menu

*For the subsequent operating procedure, see steps **2** to **6** of the procedure described in the section “Disk operations on setup, key memory, chroma key memory, and DSK snapshot data” on page 9-11.*

Chapter 10
Copy and Swap Operations

Overview 10-2
Basic Copy and Swap Operations 10-4
Copy and Swap Using Menu Operations 10-4
Copying Using Button Operations 10-5

Overview

It is possible to copy the settings on the M/E bank or a keyer to another, or to swap the settings between banks or keyers.
There are four different ways you can make a copy or swap to affect different sets of settings, as follows:
• M/E copy and M/E swap
• Keyer copy and keyer swap
• Wipe copy and wipe swap
• Matte copy and matte swap

M/E copy and M/E swap

Banks copied or swapped

All of the current settings on the M/E and PGM/PST banks are copied or swapped.

Data not copied or swapped

The following data is not copied or swapped:
• Setup data
• Key memory

Note

When the copy/swap source on the M/E bank has chroma key selected as the key type, the key type is not copied to the PGM/PST bank (not provided with the chroma key function). However, other key data (key edge, etc.) is copied.

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Keyer copy and keyer swap

Keyers copied or swapped

The following three keyers can be copied or swapped:

- M/E bank keys 1 and 2
- Downstream keyer

Data not copied or swapped

The following data is not copied or swapped:

- Key memory
- Setup data

Note

When the source specified for a copy or swap between an M/E keyer and a downstream keyer has chroma key selected as the key type, the key type is not copied. However, other key data (key edge, etc.) is copied.

Wipe copy and wipe swap

Wipe generators copied or swapped

The settings of the wipe generators for the M/E and PGM/PST banks can be copied or swapped.

Matte copy and matte swap

Mattes copied or swapped

The settings of the following matte color generators can be copied or swapped:

- The following matte colors for the M/E bank
  Key 1 key fill, key 1 key edge, key 2 key fill, key 2 key edge, wipe border, and color background
- The following matte colors for the PGM/PST bank
  DSK1 key fill, DSK1 key edge, wipe border, and color background

Basic Copy and Swap Operations

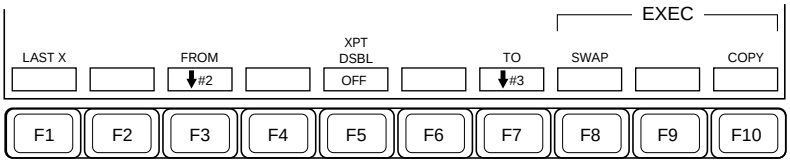
Copy and Swap Using Menu Operations

For copy and swap operations, use the COPY menu. The basic menu operation is as follows.

1 In the menu control section, press the top menu selection button COPY in the SYSTEM group.

2 Press one of item selection buttons 1 (M/E) to 4 (MATTE) to select the type of data to be copied or swapped.

The function key indications change as follows, except that F5 (XPT DSBL) appears only if you selected 1 (M/E) or 2 (KEYER).



3 Press F3 (FROM) or turn control knob 2 to align the cursor on the "FROM" side with the source of the copy or swap. You can also use the cursor keys (↑ ↓ ← →).

Depending on the block you select for the source, a list of the destination selections appears on the "TO" side.

4 Press F7 (TO) or turn control knob 3 to align the cursor on the "TO" side with the destination of the copy or swap. You can also use the cursor keys (↑ ↓ ← →).

5 When you selected 1 (M/E) or 2 (KEYER) in step **2**, set F5 (XPT DSBL) to ON or OFF. To copy or swap the cross-point button selections, set this to OFF; in order not to copy or swap the cross-point button selections, set this to ON.

6 To carry out a swap, press F8 (SWAP); to carry out a copy, press F10 (COPY).

This carries out the swap or copy.

To restore the state before a copy or swap
Press F1 (LAST X).

Copying Using Button Operations

There are simple button operations for the following copy operations:
• M/E copy
• Keyer copy
• Wipe copy
• Color background copy

Basic button operation

The basic button operation is to hold down the top menu selection button COPY and, without releasing it, further press the button assigned to the source, then press the button assigned to the destination.

M/E copy button operation

Use the delegation buttons M/E UTIL and P/P UTIL on the auxiliary bus bank.

To copy from the M/E bank to the PGM/PST bank (example operation)
Hold down the top menu selection button COPY and, without releasing it, press the delegation button M/E UTIL on the auxiliary bus bank, then press the P/P UTIL button.

M/E keyer copy button operation

Use the top menu selection buttons for each keyer.

To copy from M/E key 1 to DSK1 (example operation)
Hold down the top menu selection button COPY and, without releasing it, press the top menu selection button KEY1 in the M/E group, then press the top menu selection button DSK1 in the PGM/PST group.

Wipe copy button operation

Use the top menu selection buttons WIPE in the M/E and PGM/PST groups.

To copy wipe data from the M/E bank to the PGM/PST bank (example operation)

Hold down the top menu selection button COPY and, without releasing it, press the top menu selection button WIPE in the M/E group, then press the top menu selection button WIPE in the PGM/PST group.

Color background copy button operation

Use the top menu selection buttons BKGD/TRANS in the M/E and PGM/PST groups.

To copy a color background from the M/E bank to the PGM/PST bank (example operation)

Hold down the top menu selection button COPY and, without releasing it, press the top menu selection button BKGD/TRANS in the M/E group, then press the top menu selection button BKGD/TRANS in the PGM/PST group.

Chapter 11
MISC Menu Operations

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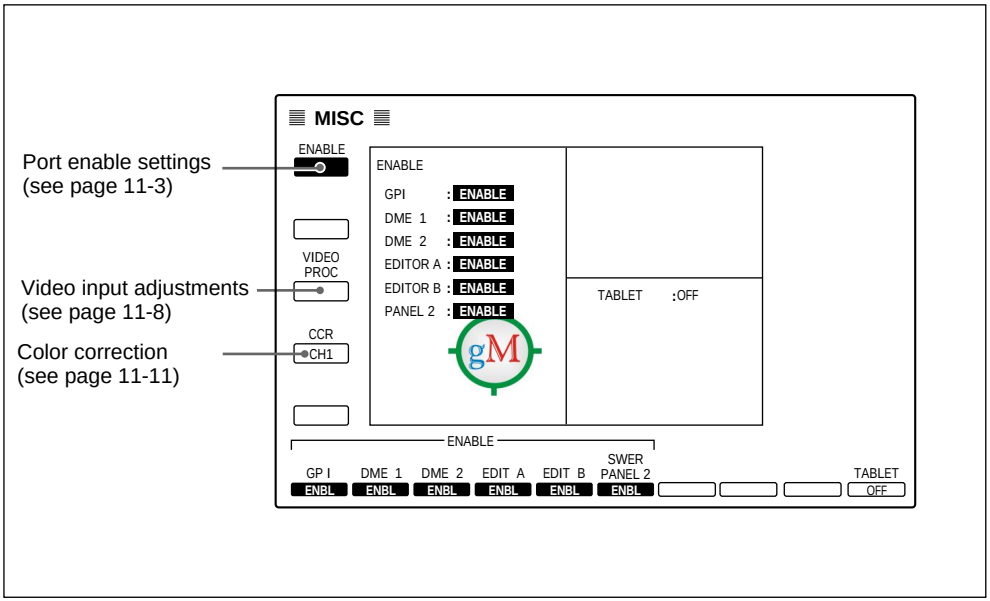
Overview

This section describes the functions controlled from the MISC (for “miscellaneous”) menu: the port enable function, the video process function, and color correction function.

Accessing the MISC menu

To access the MISC menu, in the menu control section, press the MISC top menu button of the SYSTEM group.



Example MISC menu display

Port Enable Settings

Overview

The port enable function controls the enabling and disabling of ports on the switcher from external devices. You can make these settings for the following ports.

Switcher ports:

- GPI (parallel port, D-sub 25-pin)
  You can carry out the GPI input/output settings in a setup menu *(see pages 13-37 and 13-39)*.
- EXT DME 1 and EXT DME 2 (serial, RS-422A, D-sub 9-pin)
- EDITOR A / REMOTE 1 (serial, RS-422A, D-sub 9-pin)
- EDITOR B / REMOTE 2 (serial, RS-422A, D-sub 9-pin)
- PANEL 2 / REMOTE 3 (serial, RS-422A, D-sub 9-pin)

Note

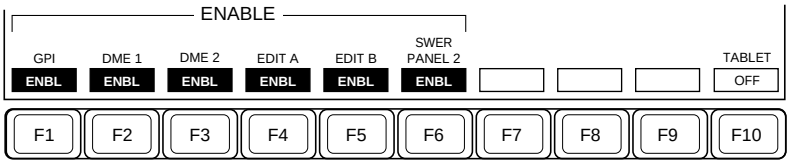
For the control of the auxiliary buses from ports other than GPI, the setting (ENBL/DSBL/MANUAL) in the setup menu *(see page 13-33)* takes precedence. The MISC menu setting is only effective when this setup menu item is set to MANUAL.

Carrying out port enable settings

Use the following procedure to enable and disable ports.

1 In the MISC menu, select item 1 (ENABLE).

The ENABLE menu appears.



Function key indications in the ENABLE menu

2 Press any of F1 to F6, toggling it between “ENBL” (for enable) and “DSBL” (for disable).

F1 (GPI): GPI port
F2 (DME1) and F3 (DME2): EXT DME1 and EXT DME2 ports
F4 (EDIT A): EDITOR A port
F5 (EDIT B): EDITOR B port
F6 (SWER PANEL 2): PANEL 2/REMOTE 3 port

The F4 and F5 indications depend on the settings in the PORT ASSIGN menu *(see page 13-32).*

Note

When you save setup data, the port enable settings are saved as part of the setup data in the non-volatile memory or on a floppy disk. Therefore, when the unit is powered on or reset with the resume functon being “off”, the port enable settings are read from the memory before the system starts. Note that it is not possible to save port enable settings in a snapshot data.

For details of saving and recalling setup data, see page 13-3.

Controlling the Positioner Function With a Tablet

By connecting a tablet to the control panel, it is possible to control the positioner function using an electronic stylus in place of the trackball in the BKDS-7031 DME Control Panel Unit.

For details of the operation of the tablet, refer to the documentation supplied with the tablet.

Recommended tablet

The following tablet and stylus manufactured by WACOM are recommended.

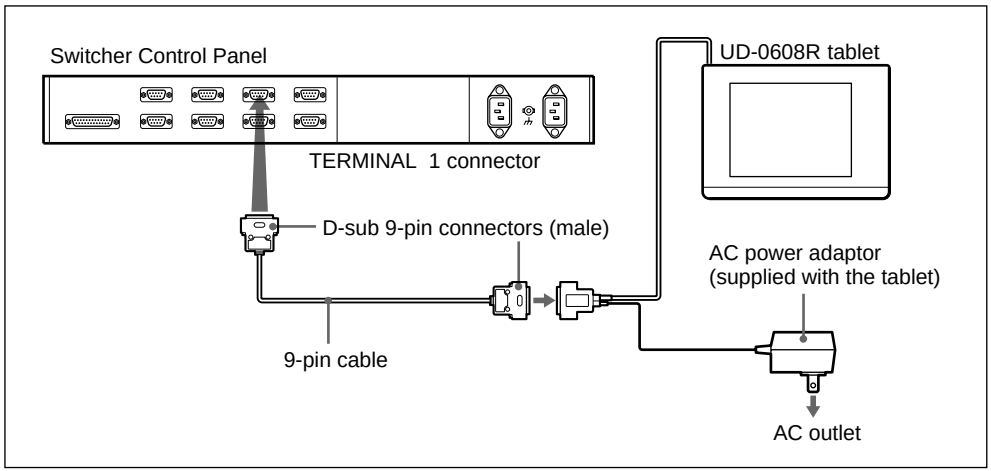
Tablet: UD-0608R
Stylus: UP-801E

Option Using a tablet requires the BKDS-7031 DME Control Panel Unit to be installed.

Connecting the tablet

Using a 9-pin cable, connect the tablet to the switcher control panel as follows.

For details of the connection, refer also to the documentation supplied with the tablet.



Connector pin assignments

The connector pin assignments are as follows.

TERMINAL 1 connector on the control panel

Signal	Pin number
DCD	1
RXD	2
TXD	3
DTR	4
GND	5
DSR	6
RTS	7
CTS	8
	9

Tablet cable connector

Pin number	Signal
1	NC
2	TXD
3	RXD
4	DSR
5	SG
6	DTR
7	CTS
8	RTS
9	NC

Tablet settings

Using the menu sheet supplied with the tablet, make the following settings.

For more details of the settings, refer to the documentation supplied with the tablet.

Item	Setting
Commands	WACOM Ⅱ
Baud rate	9600
Parity	None
Data length	8 bits
Stop bits	1
Monitor	None
Resolution	508
Coordinate content	Absolute

Item	Setting
Format	Binary
Terminator	CR
Operating mode	Stream
Always transmit	On
Origin	Upper left corner
Report rate	Maximum
Remote	Off
Tablet orientation	Landscape
Cursor SW	1234

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Functions which can be controlled from the tablet

You can use the tablet as the wipe positioner for the wipe generator currently selected in the wipe control block.

Note

In this case, the entire tablet area corresponds to the positioner range, and the absolute stylus position is input as the data value. Therefore when you switch the wipe generator selection, the pattern on the newly selected wipe generator jumps instantaneously to the position corresponding to the stylus position.

Controlling the positioner function with the tablet

To assign the tablet to the positioner function for a particular menu, use the following procedure.

1 In the MISC menu, select item 1 (ENABLE).

2 Set F10 (TABLET) to “ON”.

3 Display the menu whose positioner function you wish to use.

4 Press the MENU button in the DME control panel, turning it on.

The MENU button lights amber, and the tablet can now be used for the positioner function.
In this state, changing the menu ends this assignment, but it is possible to keep the tablet assigned to the positioner function by the following method.

To assign the tablet permanently to the positioner function

In step **4** above, press the MENU button twice in rapid succession, lighting it green.
In this state, switching to another menu leaves the tablet assigned to the positioner function for the menu selected in step **3**.

Video Input Adjustments (Video Process Function)

Overview

The video process function allows you to make separate adjustments of brightness, hue, and so forth, for each input video signal.

Adjustments

You can adjust the following five parameters:

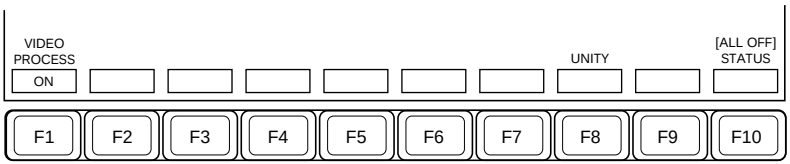
- Video signal overall gain
- Y signal gain
- Chrominance signal gain
- Hue delay
- Y signal black level

Video process function operation

To carry out a video process function operation, use the following procedure.

1 In the MISC menu, select item 3 (VIDEO PROCESS).

The VIDEO PROCESS menu appears.



Function key indications in the VIDEO PROCESS menu

The menu screen shows the input signal names currently selected on the buses, and whether the video process function is on or off for each signal.

2 Press a cross-point button for the signal you wish to adjust.

As long as the cross-point button is assigned to the same signal, it can be in any bank.

The current settings for this signal appear on the screen in a pop-up, and you can now adjust them as required.
Note that you can press more than one cross-point buttons (up to a maximum of eight), and display the settings for the respective signals simultaneously. In this case, however, any adjustments using the video process function apply only to the last signal you selected.

3 Press F1 (VIDEO PROCESS), turning it on, and adjust the parameters.

Knob	Parameter	Setting
1	Video Gain	Set video signal overall gain (–200.00 to +200.00)
2	Y Gain	Set Y signal gain (–200.00 to +200.00)
3	C Gain	Set chrominance signal gain (–200.00 to +200.00)
4	Hue Delay	Set hue delay (–180.00 to +180.00)
3	Black Level	Set Y signal black level (–7.30 to +109.58)

Note

The video process function operates at the input signal level. Therefore, when you select the same signal on two different buses, the effect of an adjustment on one bus is naturally reflected on the other bus.
The menu screen indicates by reverse video the names of all the buses to which the adjustment applies, so you can check beforehand.

To return the parameters to their default settings

Press F8 (UNITY).
All the parameter values return to their default settings, and the indication for F9 changes to “UNDO”. In this state, pressing F9 again returns the parameters to their previous settings.

To copy and swap settings

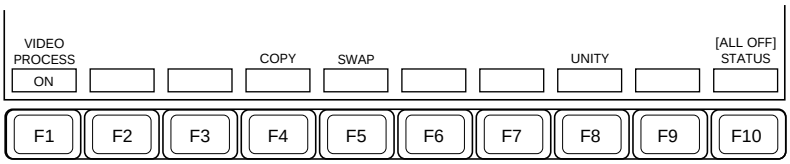
You can select two signals, then copy or swap the parameter settings between the two signals.

Use the following procedure.

1 With the VIDEO PROCESS menu displayed, select the two signals on which you wish to carry out the copy or swap. For a copy operation, select the source signal first.

(Continued)

The current settings for the two signals appear in pop-ups, and the F4 and F5 function key indications appear as follows.



Function key indications in the VIDEO PROCESS menu (with two signals selected)

Note

If it is not possible to carry out a copy or swap on the particular two signals currently selected, the functions for F4 and F5 do not appear.

2 To carry out a copy press F4 (COPY), and to carry out a swap press F5 (SWAP).

This executes the copy or swap; F4 (COPY) changes to F4 (UNDO), and F5 (SWAP) changes to F5 (UNDO).
In this state, pressing F4 or F5 undoes the effect of the copy or swap operation, returning to the previous state.

To display the status

Hold down F10 (STATUS).
This uses the cross-point buttons in the auxiliary bus bank to display the status of the video process function. The buttons corresponding to signals for which the video process function is currently on all light. By pressing the SHIFT button you can also display the status for the second set of signals in the same way.

To turn the video process function off for all signals

Hold down the SHIFT button (the indication above F10 changes to “ALL OFF”), and press F10 (STATUS).
This turns the video process function off for all signals.

Color Correction

Overview

Color correction refers to various adjustments to the color video signal (including black/white level, gamma, and knee values).
You can carry out the following operations.

- Input video processing
- Primary color correction
- Secondary color correction
- RGB clip
- Output video processing
- Luminance processing
- YUV clip

Option

To carry out color correction, the HKDS-7051 Color Correction Board is required. It provides color correction for two channels as options.

Assigning signals to cross-point buttons

To monitor a signal with a color correction applied, it is first necessary to allocate the color-corrected signal outputs (CCR1 OUT and CCR2 OUT) to cross-point buttons. For this allocation, use the SETUP menu (*page 13-43*).

Selecting signals for color correction and color-corrected signals

To select the channel for color correction

Press item 4 of the MISC menu to select the channel to which color correction is to be applied.

To select signals for color correction

Select the signal to which color correction is to be applied on the dedicated color correction bus, CCR1 bus, or CCR2 bus.

To select color-corrected signals

You can select the color-corrected signal with the cross-point button on each bus to which the signal (CCR1 OUT or CCR2 OUT) has been allocated.

Note

For the dedicated color correction bus, signal selection other than the primary signal is not possible.

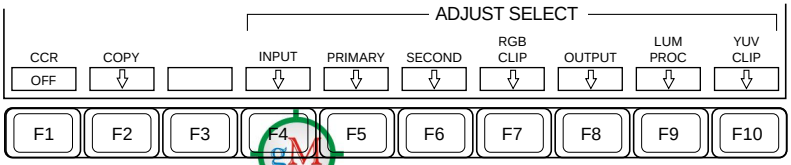
Operation Using the COLOR CORRECTION Menu

Selecting the operation to carry out

Use the following procedure.

1 In the MISC menu, press item 4 (CCR) to display the COLOR CORRECTION menu.

The COLOR CORRECTION menu appears.
Each time you press item 4 (CCR), the COLOR CORRECTION menu for channel 1 and that for channel 2 are alternately selected.
The COLOR CORRECTION menu items are common to channel 1 and channel 2.



Function key indications in the COLOR CORRECTION menu

2 Press item 4 (CCR) to select the channel.

3 Press one of the following function keys according to the operation you wish to carry out, turning it on.

F1 (CCR): Toggle on and off the color correction function.
F2 (COPY): Copy or swap the color correction data set on one channel to the other channel *(see page 11-24)*.
F4 (INPUT): Select input video processing to apply color correction to the Y, U, and V signals before conversion to the R, G, and B signals *(see page 11-13)*.
F5 (PRIMARY): Select primary color correction to apply color correction, including output level adjustments, to the R, G, and B signals *(see page 11-14)*.
F6 (SECOND): Select secondary color correction to adjust the luminance, saturation and hue for six colors: red, green, blue, yellow, cyan, and magenta *(see page 11-16)*.
F7 (RGB CLIP): Adjust the dark clip and white clip values for the R, G, and B signals *(see page 11-17)*.

F8 (OUTPUT): Select output video processing to convert the color-corrected R, G, and B signals to the Y, U, and V signals and carry out gain adjustments, etc. *(see page 11-18)*.

F9 (LUM PROC): Select luminance processing to adjust the video signal for different sections of the luminance range *(see page 11-19)*.

F10 (YUV CLIP): Select YUV clipping to adjust the clip values for the luminance and color difference signals *(see page 11-22)*.

Settings for Input Video Processing

Input video processing effects the following adjustments on the Y, U, and V signals before conversion to the R, G, and B signals.

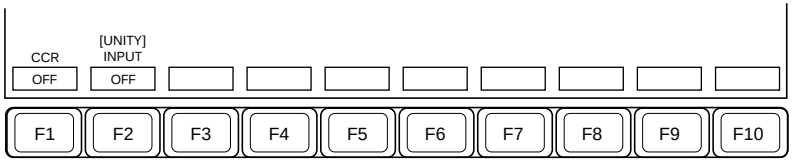
- Video signal overall gain adjustment
- Luminance (Y) signal gain adjustment
- Luminance (Y) signal offset adjustment
- Color difference (C) signal gain adjustment
- Color difference (C) signal hue adjustment

To set the parameters for input video processing

Use the following procedure.

1 In the COLOR CORRECTION menu, press F4 (INPUT).

The INPUT VIDEO PROCESS menu appears.



Function key indications in the INPUT VIDEO PROCESS menu

2 Press F1 (CCR) and F2 (INPUT), turning them on.

(Continued)

3 Set the following parameters.

Knob	Parameter	Setting
1	Video Gain	Video signal overall gain
2	Y Gain	Luminance gain (–200.00 to +200.00)
3	C Gain	Color difference gain (–200.00 to +200.00)
4	Hue	Hue delay (–180.00 to +180.00)
3	Black Level	Black level (–116.90 to +116.90)

To reset the parameters

Holding down the SHIFT button (the function display for F2 changes to "UNITY"), press F2 (UNITY).

Settings for Primary Color Correction

Primary color correction effects the following adjustments on the R, G, and B signals.

Black balance adjustment: Sets the output level for a 0% input signal level.

White balance adjustment: Sets the output level for a 100% input signal level.

Gamma correction: Sets the offset (gamma) with respect to the input signal luminance specified by the knee correction.

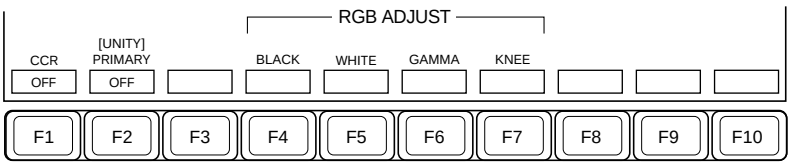
Knee correction: Sets the luminance at which gamma correction applies.

To set the parameters for primary color correction

Use the following procedure.

1 In the COLOR CORRECTION menu, press F5 (PRIMARY).

The PRIMARY COLOR CORRECTION menu appears.



Function key indications in the PRIMARY COLOR CORRECTION menu

2 Press F1 (CCR) and F2 (PRIMARY), turning them on.

3 Press one of F4 (BLACK) to F7 (KNEE) to select the parameter to change.

F4 (BLACK): Black adjustment
F5 (WHITE): White adjustment
F6 (GAMMA): Gamma correction
F7 (KNEE): Knee correction

4 Set the following parameters.

When you selected F4 (BLACK) or F6 (GAMMA):

Knob	Parameter	Setting
1	Red	R signal adjustment (–100.00 to +100.00)
2	Green	G signal adjustment (–100.00 to +100.00)
3	Blue	B signal adjustment (–100.00 to +100.00)
4	All	RGB simultaneous adjustment

When you selected F5 (WHITE):

Knob	Parameter	Setting
1	Red	R signal adjustment (0.00 to 200.00)
2	Green	G signal adjustment (0.00 to 200.00)
3	Blue	B signal adjustment (0.00 to 200.00)
4	All	RGB simultaneous adjustment

When you selected F7 (KNEE):

Knob	Parameter	Setting
1	Red	R signal adjustment (20.00 to 75.00)
2	Green	G signal adjustment (20.00 to 75.00)
3	Blue	B signal adjustment (20.00 to 75.00)
4	All	RGB simultaneous adjustment

To reset the parameters

Holding down the SHIFT button (the function display for F2 changes to “UNITY”), press F2 (UNITY).

Settings for Secondary Color Correction

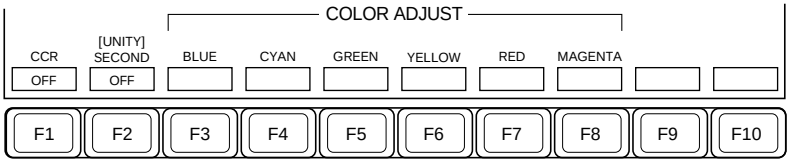
Secondary color correction adjusts the luminance, saturation and hue for six colors: red, green, blue, yellow, cyan, and magenta.

To set the parameters for secondary color correction

Use the following procedure.

1 In the COLOR CORRECTION menu, press F6 (SECOND).

The SECONDARY COLOR CORRECTION menu appears.



Function key indications in the SECONDARY COLOR CORRECTION menu

2 Press F1 (CCR) and F2 (SECOND), turning them on.

3 Press one of F3 (BLUE) to F8 (MAGENTA) to select the color to adjust.

4 Set the following parameters.

Secondary color correction applies to the ±30° range of color space for the selected color.

Knob	Parameter	Setting
1	Luminance	Luminance (–100.00 to +100.00)
2	Saturation	Saturation (0.00 to 200.00)
3	Hue	Hue (–180.00 to +180.00)

To reset the parameters

Holding down the SHIFT button (the function display for F2 changes to “UNITY”), press F2 (UNITY).

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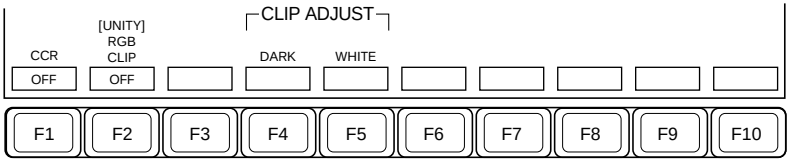
Adjusting RGB Clip Values

To adjust the RGB clip values

To adjust the dark clip and white clip values for the R, G, and B signals, use the following procedure.

1 In the COLOR CORRECTION menu, press F7 (RGB CLIP).

The RGB CLIP menu appears.



Function key indications in the RGB CLIP menu

2 Press F1 (CCR) and F2 (RGB CLIP), turning them on.

3 Press F4 (DARK) or F5 (WHITE) to select the parameter to adjust.

F4 (DARK): Dark clip
F5 (WHITE): White clip

4 Set the following parameters.

Knob	Parameter	Setting
1	Red	R signal adjustment (–50.00 to +150.00)
2	Green	G signal adjustment (–50.00 to +150.00)
3	Blue	B signal adjustment (–50.00 to +150.00)
4	All	RGB simultaneous adjustment

To reset the parameters

Holding down the SHIFT button (the function display for F2 changes to “UNITY”), press F2 (UNITY).

Settings for Output Video Processing

Output video processing effects the following adjustments on the Y, U, and V signals converted from the color-corrected R, G, and B signals.

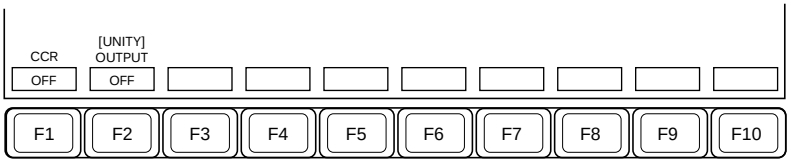
- Video signal overall gain adjustment
- Luminance (Y) signal gain adjustment
- Luminance (Y) signal offset adjustment
- Color difference (C) signal gain adjustment
- Color difference (C) signal hue adjustment

To set the parameters for output video processing

Use the following procedure.

1 In the COLOR CORRECTION menu, press F8 (OUTPUT).

The OUTPUT VIDEO PROCESS menu appears.



Function key indications in the OUTPUT VIDEO PROCESS menu

2 Press F1 (CCR) and F2 (OUTPUT), turning them on.

3 Set the following parameters.

Knob	Parameter	Setting
1	Video Gain	Video signal overall gain
2	Y Gain	Luminance gain (–200.00 to +200.00)
3	C Gain	Color difference gain (–200.00 to +200.00)
4	Hue	Hue delay (–180.00 to +180.00)
3	Black Level	Black level (–116.90 to +116.90)

To reset the parameters

Holding down the SHIFT button (the function display for F2 changes to “UNITY”), press F2 (UNITY).

Settings for Luminance Processing

Luminance processing allows the video signal to be adjusted for different sections of the luminance range. For luminance processing, the following two modes are available.
Tint mode: Adds a specified matte color to the original video signal.
Color modify mode: Adjusts the original video signal.

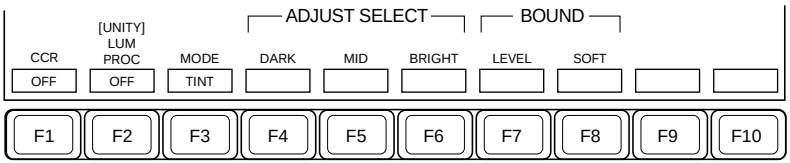
In both modes, the luminance range is divided into three sections, referred to as “Dark”, “Middle”, and “Bright”. You can carry out adjustment for each of the three sections.

To set the parameters for luminance processing

Use the following procedure.

1 In the COLOR CORRECTION menu, press F9 (LUM PROC).

The LUMINANCE PROCESS menu appears.



Function key indications in the LUMINANCE PROCESS menu

2 Press F1 (CCR) and F2 (LUM PROC), turning them on.

3 Press F3 (MODE) to select the required luminance processing mode.

TINT: Tint mode
COLMOD: Color modify mode

(Continued)

4 Press one of F4 (DARK) to F8 (SOFT) to select the required function.

For TINT mode:

F4 (DARK): Add a matte color to the “Dark” section of the luminance range.

F5 (MID): Add a matte color to the “Middle”" section of the luminance range.

F6 (BRIGHT): Add a matte color to the “Bright” section of the luminance range.

F7 (LEVEL): Set the luminance levels on the boundaries of the three sections.

F8 (SOFT): Set the degree of edge softness on the boundaries of the three sections.

For COLMOD mode:

F4 (DARK): Adjust the color corresponding to the “Dark” section of the luminance range.

F5 (MID): Adjust the color corresponding to the “Middle” section of the luminance range.

F6 (BRIGHT): Adjust the color corresponding to the “Bright” section of the luminance range.

F7 (LEVEL): Set the luminance levels on the boundaries of the three sections.

F8 (SOFT): Set the degree of edge softness on the boundaries of the three sections.

5 Set the following parameters.

When you selected one of F4 (DARK) to F6 (BRIGHT) in TINT mode:

Knob	Parameter	Setting
1	Luminance	Luminance (–100.00 to +100.00)
2	Saturation	Saturation (0.00 to 100.00)
3	Hue	Hue (0.00 to 359.99)

When you selected one of F4 (DARK) to F6 (BRIGHT) in COLMOD mode:

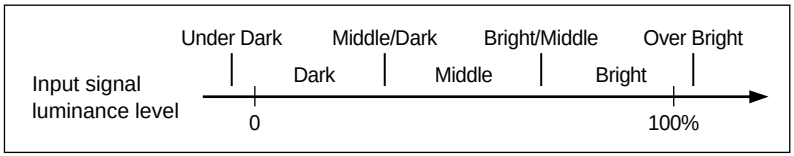
Knob	Parameter	Setting
1	Luminance	Luminance (–100.00 to +100.00)
2	Chroma	Chroma (0.00 to 200.00)
3	Hue Delay	Hue delay (–180.00 to +180.00)

When you selected F7 (LEVEL):

Knob	Parameter	Setting
1	Under D Level	Luminance level at point “Under Dark” (–50.00 to +50.00)
2	Dark Mid Level	Luminance level at point “Middle/Dark” (–20.00 to +90.00)
3	Mid B Level	Luminance level at point “Bright/Middle” (10.00 to 120.00)
4	Over B Level	Luminance level at point “Over Bright” (50.00 to 150.00)

When you selected F8 (SOFT):

Knob	Parameter	Setting
1	Under D Soft	Softness at point “Under Dark” (15.00 to 70.00)
2	Dark Mid Soft	Softness at point “Middle/Dark” (15.00 to 42.50)
3	Mid B Soft	Softness at point “Bright/Middle” (15.00 to 42.50)
4	Over B Soft	Softness at point “Over Bright” (15.00 to 70.00)



To reset the parameters

Holding down the SHIFT button (the function display for F2 changes to “UNITY”), press F2 (UNITY).

Adjusting YUV Clip Values

The following clip values for the luminance and color difference signals can be adjusted.

White clip: Sets the maximum level of the luminance signal.

Dark clip: Sets the minimum level of the luminance signal.

Positive clip: Sets the maximum amplitude in the positive direction of the color difference signal.

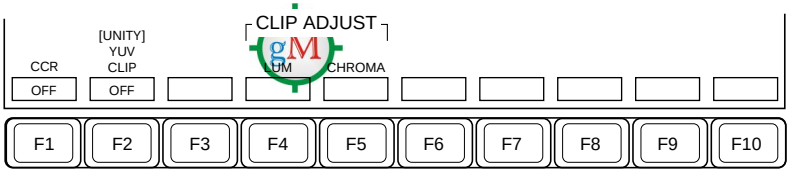
Negative clip: Sets the maximum amplitude in the negative direction of the color difference signal.

To adjust the YUV clip values

Use the following procedure.

1 In the COLOR CORRECTION menu, press F10 (YUV CLIP).

The YUV CLIP menu appears.



Function key indications in the YUV CLIP menu

2 Press F1 (CCR) and F2 (YUV CLIP), turning them on.

3 Press F4 (LUM) or F5 (CHROMA) to select the signal for which to adjust clip values.

F4 (LUM): Luminance signal

F5 (CHROMA): Color difference signal

4 Set the following parameters.

When you selected F4 (LUM):

Knob	Parameter	Setting
1	Dark	Dark clip value (–6.85 to +109.13)
2	White	White clip value (–6.85 to +109.13)

When you selected F5 (CHROMA):

Knob	Parameter	Setting
1	U Nega	Negative clip value for the U signal (–111.39 to +111.39)
2	U Posi	Positive clip value for the U signal (–111.39 to +111.39)
3	V Nega	Negative clip value for the V signal (–111.39 to +111.39)
4	V Posi	Positive clip value for the V signal (–111.39 to +111.39)

To reset the parameters

Holding down the SHIFT button (the function display for F2 changes to “UNITY”), press F2 (UNITY).

Copying or Swapping the Color Correction Data

The color correction data set on one channel can be copied or swapped to the other channel.

Note

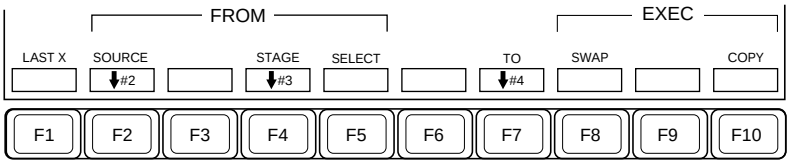
In a copy or swap operation, only the adjustment data are copied or swapped. The settings of effect ON/OFF and mask are not copied or swapped.

To copy or swap the primary color correction data

Use the following procedure.

1 In the COLOR CORRECTION menu, press F2 (COPY).

The COLOR CORRECTION COPY menu appears.



Function key indications in the COLOR CORRECTION COPY menu

2 Press F2 (SOURCE) or turn control knob 2 to align the cursor on the “FROM” side with the source channel of the copy or swap.

Depending on the channel you select for the source, the “TO” side is automatically selected. (You may specify the destination channel first.)

3 Press F4 (STAGE) or turn control knob 3 to align the cursor with the function to be copied or swapped.

Repeat this operation for each of the functions to be copied or swapped.

4 To carry out a swap, press F8 (SWAP); to carry out a copy, press F10 (COPY).

This carries out the swap or copy.

To restore the state before a copy or swap

Press F1 (LAST X).

Chapter 12
Interfacing With External Devices

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Interface With Routing Switcher 12-4
Interface With VTR 12-7
Tape Transport Control 12-7
Saving VTR Control Data in Registers 12-8
Tape Transport Control by Same Operation as Effect Execution 12-9

Overview

In an HDS-7150 system, you can control DME, editor, VTR, and other devices connected to the switcher as though they were part of it.
You can also control the switcher from a remote control panel.
This section describes the interface between the HDS-7150 and external devices.

Interface between the switcher and an HDME-7000 Digital Multi Effects

You can use combined operations of the switcher functions and DME processes, such as DME wipes and processed keys.
You can also handle DME snapshots and keyframes as though they were switcher operations.

For details of the procedures involved, see Chapters 4, and 6 to 9 of this manual.
For details of the DME operations, refer to the HZDM-7020 User's Guide.

Controlling the switcher from a BVE-9100 Editing Control Unit

For details, refer to the Operation Manual for the BVE-9100.

Carrying out M/E bank operations from a BKDS-2010 Switcher Control Panel

By connecting a BKDS-2010 to the switcher unit, you can control the M/E banks on the switcher.

For M/E remote operations using the BKDS-2010, exclusive operation software is required.

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Keyer operations using the BKDS-7060 Keyer Remote Control Panel

By connecting a BKDS-7060 to the switcher unit, you can control the switcher keyers from the BKDS-7060.

For keyer remote operations using the BKDS-7060, exclusive operation software is required.

Cross-point switching and other operations from a routing switcher

For details, see the section “Interface With Routing Switcher” (next page).

Tape transport control of an HDW-500 Digital Cassette Recorder or similar

For details, see the section “Interface With VTR” (page 12-7).

Interface With Routing Switcher

By connecting a routing switcher to the HDS-7150, each can change cross-point settings on the other.

Functions enabled when the routing switcher is connected

When a routing switcher is connected to the switcher via the BKDS-7700 Tally Interface Unit, the following functions are enabled besides signal names set on the routing switcher are automatically displayed on the switcher control panel.

- Switching cross-points on the routing switcher from the switcher panel. *(See page 12-6.)*
- Switching cross-points on the switcher buses from the routing switcher remote control panel.
- Generating tally information for the system as a whole, including the routing switcher, and distributing it to the various devices.

For details, see the BZS-7720 manual.

Note

When using the above function, in the MULTI XPT ASSIGN menu *(page 13-14)*, it is necessary to assign a different cross-point assignment table to the SERIAL TALLY port from that assigned to other ports.
Additionally, set the table data as shown on the following page. If these settings are not made correctly the function will not operate correctly.

Serial port cross-point assignment for the routing switcher interface

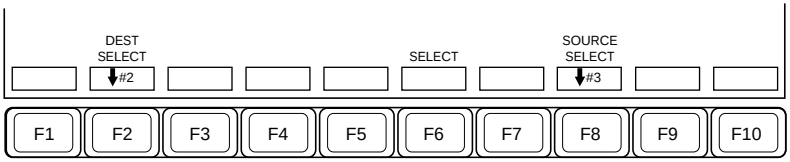
Button number	Source	Button number	Source
0	INHIBIT	32	INHIBIT
1	PRIMARY1	33	INHIBIT
2	PRIMARY2	34	INHIBIT
3	PRIMARY3	35	INHIBIT
4	PRIMARY4	36	INHIBIT
5	PRIMARY5	37	INHIBIT
6	PRIMARY6	38	INHIBIT
7	PRIMARY7	39	INHIBIT
8	PRIMARY8	40	INHIBIT
9	PRIMARY9	41	INHIBIT
10	PRIMARY10	42	INHIBIT
11	PRIMARY11	43	INHIBIT
12	PRIMARY12	44	INHIBIT
13	PRIMARY13	45	INHIBIT
14	PRIMARY14	46	INHIBIT
15	PRIMARY15	47	INHIBIT
16	INHIBIT	48	INHIBIT
17	INHIBIT	49	INHIBIT
18	INHIBIT	50	INHIBIT
19	INHIBIT	51	INHIBIT
20	INHIBIT	52	INHIBIT
21	INHIBIT	53	INHIBIT
22	INHIBIT	54	INHIBIT
23	INHIBIT	55	INHIBIT
24	INHIBIT	56	INHIBIT
25	INHIBIT	57	INHIBIT
26	INHIBIT	58	INHIBIT
27	INHIBIT	59	INHIBIT
28	INHIBIT	60	INHIBIT
29	INHIBIT	61	INHIBIT
30	INHIBIT	62	INHIBIT
31	INHIBIT	63	INHIBIT

To switch a cross-point on the routing switcher from the control panel

Use the following procedure.

1 Press the top menu selection button ROUTR.

The ROUTER menu appears.



Function key indications in the ROUTER menu

2 Press F2 (DEST SELECT), or turn control knob 2 to align the cursor with the bus name (DESTINATION) on the routing switcher.

3 Press F8 (SOURCE SELECT), or turn control knob 3 to align the cursor with the input signal name on the routing switcher.

4 Press F6 (SELECT).

This switches the cross-point on the routing switcher.

Interface With VTR

In an HDS-7150 system, you can carry out the following control on a maximum of two VTRs connected to the control panel.

- Controlling the VTR tape transport from the DME control panel
- Saving VTR control data (start point, stop point, and start offset point) in a register
- Recalling VTR control data from a register, and using the same operation as for a keyframe, controlling the VTR tape transport

Option

The interface with a VTR requires an optional BKDS-7001 Control Port Extension Board to be installed in the control panel.

Tape Transport Control

To select a VTR

Using the sub-register selection buttons in the numeric keypad section, select the VTR to be controlled.

To select VTR 1, press the V1 button, and to select VTR 2, press the V2 button. If both buttons are lit, you can control the two VTRs simultaneously.

To control the tape transport

Use the buttons in the DME control panel to control the VTR tape transport.

ORTHG (VTR): Press this button, turning it on, to control the VTR from the DME control panel. When this button is lit, the other buttons have the following functions.

To use the ORTHG button for VTR tape transport control, in the setup menus a setting is necessary for using this button as a VTR button. For more details, see the section "Changing Switcher Functions (OPERATION MODE Menu)" (page 13-48).

X (REW): Rewinds the tape.
Y (PLAY): Plays back the tape.
Z (FF): Fast forwards the tape.
CLR WORK BUFF (STB OFF): Switches to "standby off" mode.
CTR (STOP): Stops the tape.
VELO HOLD (JOG): Moves the tape at a speed dependent on the rate of rotation of the search dial (jog mode).
Z-ring (search dial): In jog mode, acts as a search dial.

Saving VTR Control Data in Registers

To save the VTR start point and stop point timecode values in a register

Use the following procedure.

1 In the numeric keypad section, recall the register in which you want to save the start point and stop point.

For details of the operation, see the section "Accessing a Register" (page 7-6).

2 Using the buttons in the DME control panel, search for the cue position for the start point.

3 Press the ASP SKEW PERS (MARK IN) button to save the current timecode as the start point.

4 In the same way as in step 2, search for the stop point.

5 Press the LOC XYZ (MARK OUT) button to save the current timecode as the stop point.

To save the VTR start offset point

You can save the time from when you press the RUN button in the keyframe control section, until the VTR starts playback as the start offset point. Carry out this setting in the REGISTER menu.

For details, see the section "Displaying and Setting VTR Control Registers" (page 8-18).

Tape Transport Control by Same Operation as Effect Execution

If you have first saved the three timecode values for the VTR start point, stop point, and start offset point in a register, then you can control the VTR in the same way as for a keyframe effect.

To recall a register

To recall a register in which you have first saved the VTR start point, stop point, and start offset point, in the numeric keypad section press the RCALL button, then enter the number of the register.
When the register is recalled, the VTR is cued up to the start point.

To play the tape

To play the tape, press the RUN button in the keyframe control panel.

To cue up to the start point

To cue up the VTR to the start point in the currently recalled register, press the REWIND button in the keyframe control panel.

Chapter 13
Setup

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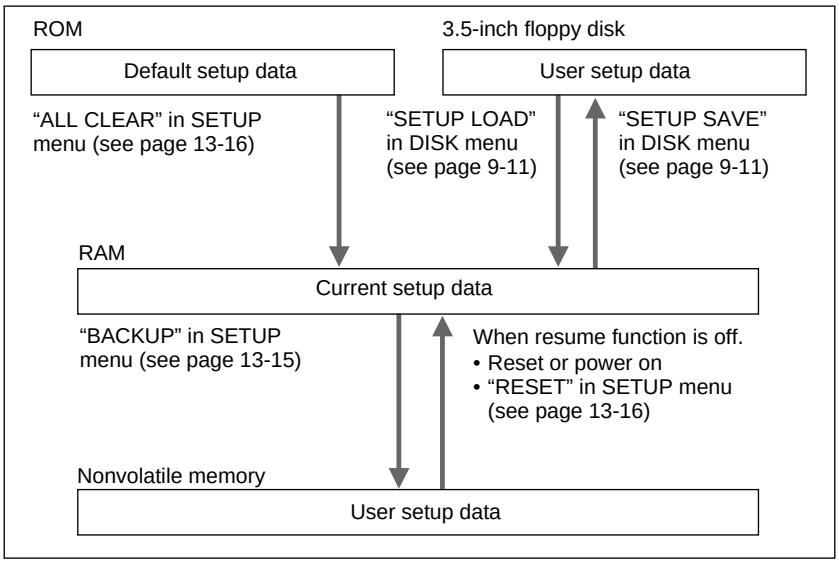
Overview

To operate a system comprising a switcher unit and a control panel connected together, it is necessary to access the various setup menus, and make various settings. These settings are referred to as setup data.

For details of menu operation, see the section "Basic Menu Operations" (page 3-5).

Saving and Recalling Setup Data

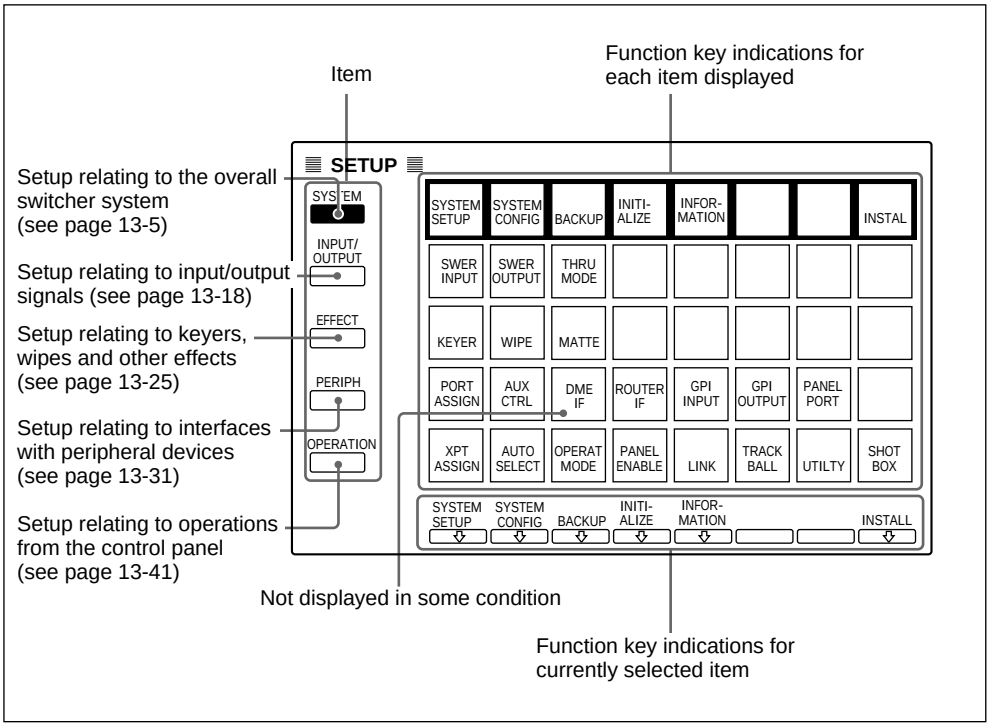
Default values (default setup data) for all settings on the switcher unit and control panel are held in ROM in the individual units.
Using the setup menus, you can create a set of customized setup data (user setup data) held in RAM. The setup data in RAM in each unit is lost when the unit is powered off or reset, but you can also save the user setup data in nonvolatile memory or on a 3.5-inch floppy disk (using the floppy disk drive in the control panel).
The setup data in nonvolatile memory in each unit is automatically loaded into RAM when the unit is powered on or reset.
If the resume function is on (F7 and F8 set to ON in the SYSTEM SETUP menu *(see page 13-8)*), the setup data held in RAM is saved when the unit is reset or powered off and it is used again after the unit is reset or next powered on.


ROM
3.5-inch floppy disk
Default setup data
User setup data
"ALL CLEAR" in SETUP menu (see page 13-16)
"SETUP LOAD" in DISK menu (see page 9-11)
"SETUP SAVE" in DISK menu (see page 9-11)
RAM
Current setup data
"BACKUP" in SETUP menu (see page 13-15)
When resume function is off.
• Reset or power on
• "RESET" in SETUP menu (see page 13-16)
Nonvolatile memory
User setup data

Saving and recalling setup data

Displaying the SETUP Menu

To carry out a setup operation, first press the SETUP button in the menu control section of the control panel to display the SETUP menu.



Example of SETUP menu display

The rest of this section describes the setup operations which you can carry out from items selected in the SETUP menu.

Note

If the setup data is write-protected, you cannot change it through menu operations, even though it is possible to change the settings by loading setup data from a floppy disk.

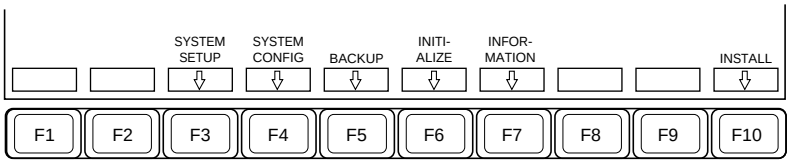
For details of how to write-protect the setup data and how to release the write-protect state, see page 13-15.

Setup Relating to the Overall Switcher System (SYSTEM Menu)

To carry out setup operations relating to the overall switcher system, access the SYSTEM menu.

Accessing the SYSTEM Menu

In the SETUP menu, select item 1 (SYSTEM).
The SYSTEM menu appears.



Function key indications in the SYSTEM menu

To select the next menu

When you have displayed the SYSTEM menu, access the next menu according to the data item you wish to set.
The menus you can access from the SYSTEM menu are listed in the following table, together with their functions, and the function keys you need to press to access them.

Menus accessed from the SYSTEM menu

Menu	Functions	Function key	See page
INSTALL	Installing software	F10 (INSTALL)	13-7
SYSTEM SETUP	• Setting the date • Setting the time • Selecting the number of effective scan lines • Setting the screen aspect ratio • Selecting the frequency mode • Selecting the input reference signal • Selecting the video switching timing • Selecting the state at power on • Setting the buzzer	F3 (SYSTEM SETUP)	13-8

(Continued)

Menus accessed from the SYSTEM menu (Continued)

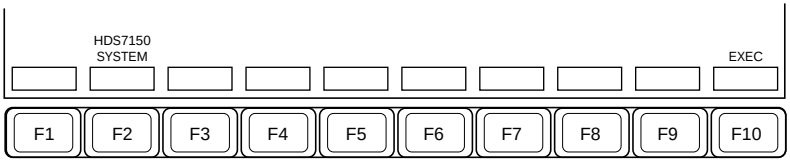
Menu	Functions	Function key	See page
SYSTEM CONFIGURATION	• Specifying the final bank or block to be controlled from the remote panel • Setting the phase relation between the external sync signal input to the switcher and the output signals of the switcher • Setting multiple cross-point assignments	F4 (SYSTEM CONFIG)	13-12
BACKUP	• Saving the setup data in nonvolatile memory • Making the setup data write-protected or not	F5 (BACKUP)	13-15
INITIALIZE	• Resetting the switcher and control panel to the state at power on • Clearing the switcher memory and control panel memory and initializing the switcher and control panel based on the default setup data	F6 (INITIALIZE)	13-16
INFORMATION	Displaying the software version numbers	F7 (INFORMATION)	13-17

Installing Software (INSTALL Menu)

To install the HZS-7040 operation software, use DISK 1 and DISK 2 of the supplied four floppy disks, and proceed as follows:

1 In the SYSTEM menu, press F10 (INSTALL).

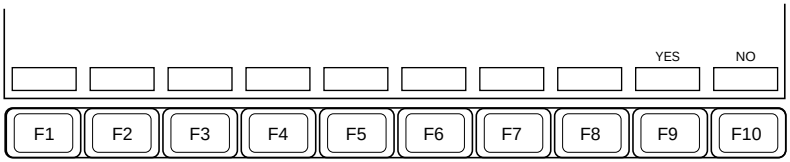
The INSTALL menu appears.



Function key indications in the INSTALL menu

2 Press F2 (HDS7150 SYSTEM) and F10 (EXEC), in that order.

The function key indications change as follows.



Function key indications in the INSTALL menu (after pressing F10)

3 To carry out the software installation, press F9 (YES), and to cancel the installation press F10 (NO).

If you press F9 (YES), carry out the installation following the messages on the screen.

Making Various System Settings (SYSTEM SETUP Menu)

You can use the SYSTEM SETUP menu for the following settings.

- **Setting the date:** Set the calendar in the switcher.
- **Setting the time:** Set the clock in the switcher.
- **Selecting the number of effective scan lines:** Select 1035 or 1080 as the number of effective scan lines.
- **Setting the screen aspect ratio:** Select 4:3 or 16:9 as the screen aspect ratio.
- **Selecting the frequency mode:** Select the frequency mode according to the format of the input signal.
- **Selecting the input reference signal:** Select a high definition tri-level sync signal or black burst as the input reference signal.
- **Selecting the video switching timing:** Select the fields on which video switching occurs from among ANY, F1 (1st field) and F2 (2nd field).
- **Selecting the state at power on:** Specify whether the switcher and control panel settings at power on are the settings when the unit was last powered off (resume function ON) or the settings saved using the BACKUP menu (resume function OFF).
  Regardless of this selection, the signal format setting at power on is always the same as when the unit was last powered off.
- **Setting the buzzer:** Specify whether to sound (NO) or not to sound (OFF) the buzzer when an error occurs. Even if this is set to OFF, an error message appears on the menu screen.

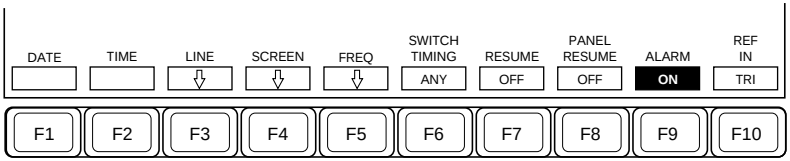
Note

Of the above, the settings relating to the number of effective scan lines, the screen aspect ratio, and the frequency mode also apply to the DME automatically.

To carry out these settings, use the following procedure.

1 In the SYSTEM menu, press F3 (SYSTEM SETUP).

The SYSTEM SETUP menu appears.



Function key indications in the SYSTEM SETUP menu

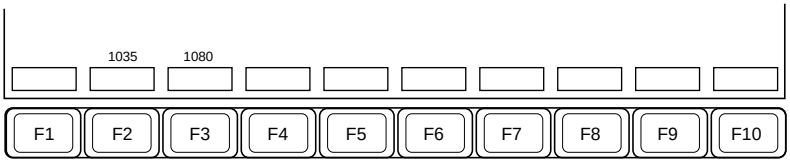
2 Carry out the operation in the following table to make the required setting.

Setting	Operation
Setting the date	Press F1 (DATE), then enter the date from the numeric keypad, in the American order (mm-dd-yy), but separating the items by periods. For example, to set the date to 5th December 1999, enter “12.5.1999” then press the ENTER button.
Setting the time	Press F2 (TIME), then enter the time (hh:mm:ss) from the numeric keypad, using the 24-hour clock and separating the items by periods. For example, to set the time to 14:25:20, enter “14.25.20” then press the ENTER button.
Selecting the number of effective scan lines	Go to step **3**.
Selecting the screen aspect ratio	Go to step **6**.
Selecting the frequency mode	Go to step **9**.
Selecting the input reference signal	Press F10 (REF IN). This toggles the setting between high definition tri-level sync signal (TRI) and black burst (BB).
Selecting the video switching timing	Press F6 (SWITCH TIMING). This cycles the setting through ANY, F1 and F2.
Selecting the state at power on	Press F7 (RESUME) or F8 (PANEL RESUME). This toggles the setting on and off.
Setting the buzzer	Press F9 (ALARM). This toggles the setting on and off.

(Continued)

3 To select the number of effective scan lines, press F3 (LINE).

The function key indications change as follows:



4 Press the function key (F2 or F3) corresponding to the desired effective scan lines.

Effective scan lines	Function key to press
1035 lines	F2 (1035)
1080 lines	F3 (1080)

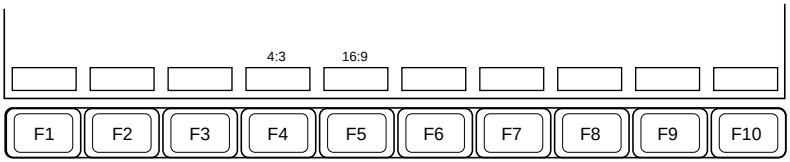
The function of F10 changes to EXEC.

5 Press F10 (EXEC).

The SYSTEM SETUP menu is restored.

6 To select the screen aspect ratio, press F4 (SCREEN).

The function key indications change as follows:



7 Press the function key (F4 or F5) corresponding to the desired ratio.

Aspect ratio	Function key to press
4:3	F4 (4:3)
16:9	F5 (16:9)

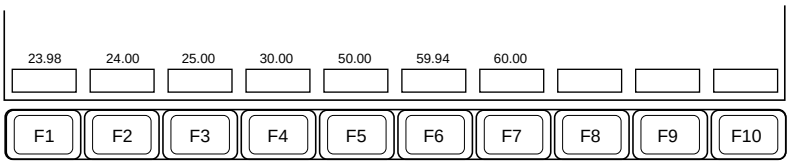
The function of F10 changes to EXEC.

8 Press F10 (EXEC).

The SYSTEM SETUP menu is restored.

9 To select the frequency mode, press F5 (FREQ).

The function key indications change as follows:



10 Press the function key (F1 to F7) corresponding to the desired mode.

Frequency mode	Function key to press
23.98	F1 (23.98)
24.00	F2 (24.00)
25.00	F3 (25.00)
30.00	F4 (30.00)
50.00	F5 (50.00)
59.94	F6 (59.94)
60.00	F7 (60.00)

The function of F10 changes to EXEC.

11 Press F10 (EXEC).

Note

If the number of effective scan lines and frequency mode are changed, the system is reset to the state at power on and the new settings are then applied. The new settings are immediately saved in nonvolatile memory.
If the screen aspect ratio is changed, the control panel and DME settings are reset to the state at power on, while the switcher is not reset. The new screen aspect ratio is immediately applied.

Setting the System Configuration (SYSTEM CONFIGURATION Menu)

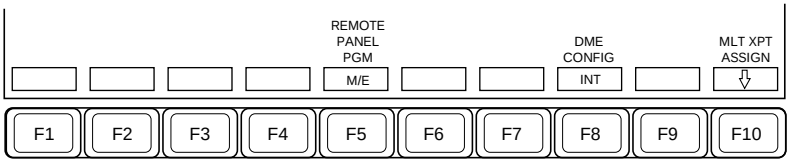
You can use the SYSTEM CONFIGURATION menu for the following settings.

- **Specifying the final bank to be controlled from the remote panel:** Specify the M/E or PGM/PST bank to be controlled as the final bank from the remote panel connected to the PANEL 2 connector of the switcher. This setting determines the high tally indication on the switcher phase.
- **Specifying the DME to be used, internal or external:** Specify whether to use the internal DME (the optional HKDS-7061 and HKDS-7071 installed in the switcher) or the external DME (the HDME-7000 connected to the switcher).
- **Multiple cross-point assignment:** Set up to five sets of different signal assignments to cross-point buttons (assignment tables). Also select the assignment table currently used.

To carry out these settings, use the following procedure.

1 In the SYSTEM menu, press F4 (SYSTEM CONFIG).

The SYSTEM CONFIGURATION menu appears.



Function key indications in the SYSTEM CONFIGURATION menu

2 Carry out the operation in the following table to make the required setting.

Setting	Operation
Specifying the DME to be used	Press F8 (DME CONFIG). This toggles the setting between INT and EXT.
Specifying the final bank to be controlled via the PANEL 2 connector of the switcher	Press F5 (REMOTE PANEL PGM). This toggles the setting between M/E and PGM/PST.
Multiple cross-point assignment	Press F10 (MLT XPT ASSIGN) to display the MULTI XPT ASSIGN menu. For details see the next item.

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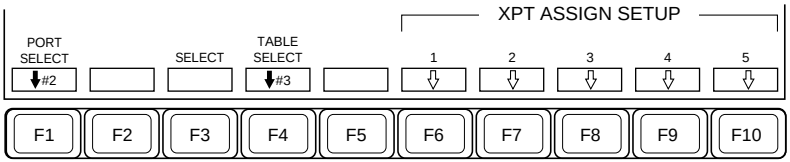
Assigning a cross-point assignment table to a port

You can assign any of the five cross-point assignment tables to each of the 9-pin ports on the rear panel. By default table 1 is assigned to all of the 9-pin ports.
Proceed as follows.

1 In the SYSTEM CONFIGURATION menu, press F10 (MLT XPT ASSIGN).

The MULTI XPT ASSIGN menu appears.



Function key indications in the MULTI XPT ASSIGN menu

2 Press F1 (PORT SELECT) or turn control knob 2 to align the cursor with the required 9-pin port.

3 Press F4 (TABLE SELECT) or turn control knob 3 to align the cursor with the required table number.

4 Press F3 (SELECT).

This assigns the table to the port.

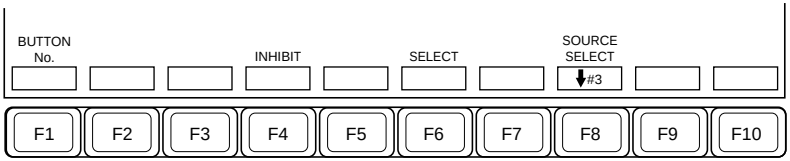
Repeat steps **2** to **4** as required to assign tables to all of the ports.

Creating different cross-point assignment tables

To create the data for the five cross-point assignment tables, use the following procedure.
Note that for the PANEL1 port, you can also make assignments in the XPT ASSIGN menu *(see page 13-43)*.

1 In the MULTI XPT ASSIGN menu, press one of F6 (1) to F10 (5), to select the table to which the settings apply.

The XPT ASSIGN menu appears.



Function key indications in the XPT ASSIGN menu

2 Referring to the section “Carrying Out Setup Relating to Assigning an Input Signal to a Cross-Point Button” *(page 13-43)*, carry out the assignments. For the input signal identifiers, use the separate XPT ASSIGN menu *(see page 13-43)*. It is not possible to set these in this menu.

Repeat steps **1** and **2** as required to create all of the tables.

Saving Setup Data and Making Data Write-Protected or Not (BACKUP Menu)

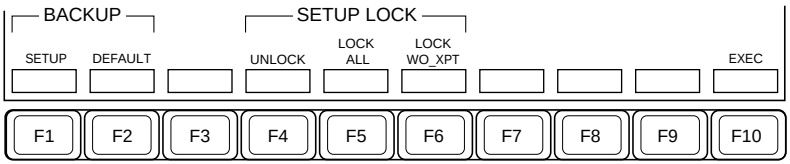
You can use the SAVE menu for the following settings.

- **Saving the setup data:** Save the setup data to be restored when the switcher is next powered on with F7 (RESUME) and F8 (PANEL RESUME) off in the SYSTEM SETUP menu.
- **Saving the default settings:** Save the default settings to be restored when the switcher is next powered on with F7 (RESUME) off in the SYSTEM SETUP menu. The saved default settings are applied when the key modifiers or wipe modifiers are reset altogether.
- **Making the setup data write-protected or not:** You can write-protect the setup data. When the setup data is write-protected, it is not possible to change any settings with the exception of releasing the write-protected state. The settings in the XPT ASSIGN menu and system resetting can also be made exceptions.

To carry out these settings, use the following procedure.

1 In the SYSTEM menu, press F5 (BACKUP).

The BACKUP menu appears.



Function key indications in the BACKUP menu

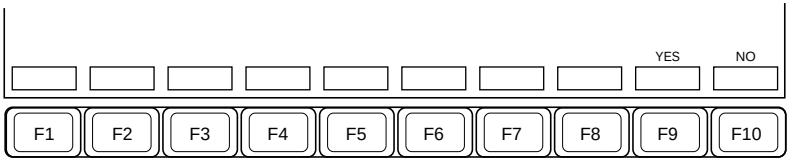
2 Carry out the operation in the following table to make the required setting.

Setting	Operation
Saving the setup data	Press F1 (SETUP).
Saving the default settings	Press F2 (DEFAULT).
Making the setup data write-protected or not	Press F4, F5 or F6. F4 (UNLOCK): Release the write-protected state. F5 (LOCK ALL): Write-protect all setup data. F6 (LOCK WO_XPT): Write-protect the setup data with the exception of the settings in the XPT ASSIGN menu and system resetting.

(Continued)

3 Press F10 (EXEC).

The function key indications change as follows.



Function key indications in the BACKUP menu (after pressing F10)

4 To carry out the operation you selected in step **2**, press F9 (YES), and to cancel the operation press F10 (NO).

Resetting and Initializing the Switcher and Control Panel (INITIALIZE Menu)

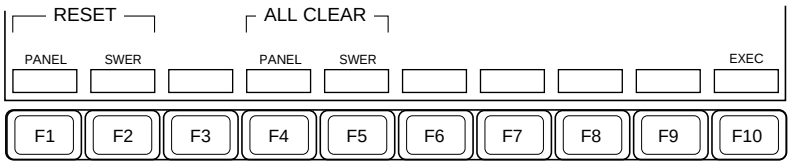
You can use the INITIALIZE menu for the following settings.

- **Resetting the switcher and control panel:** Reset the switcher and control panel to the state at power on.
- **Initializing the switcher and control panel:** Clear the switcher memory and control panel memory and initialize the switcher and control panel based on the default setup data.

To carry out these settings, use the following procedure.

1 In the SYSTEM menu, press F6 (INITIALIZE).

The INITIALIZE menu appears.



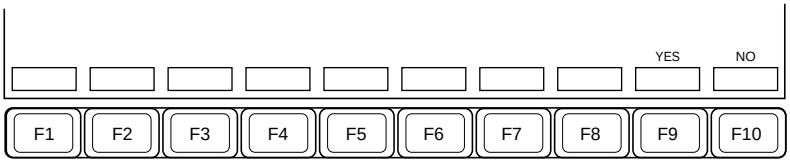
Function key indications in the INITIALIZE menu

2 Carry out the operation in the following table to make the required setting.

Setting	Operation
Resetting the control panel	Press F1 (PANEL).
Resetting the switcher	Press F2 (SWER).
Initializing the control panel	Press F4 (PANEL).
Initializing the switcher	Press F5 (SWER).

3 Press F10 (EXEC).

The function key indications change as follows.



Function key indications in the INITIALIZE menu (after pressing F10)

4 To carry out the reset or initialization you selected in step **2**, press F9 (YES), and to cancel the reset or initialization press F10 (NO).

Displaying the Software Version Numbers (INFORMATION Menu)

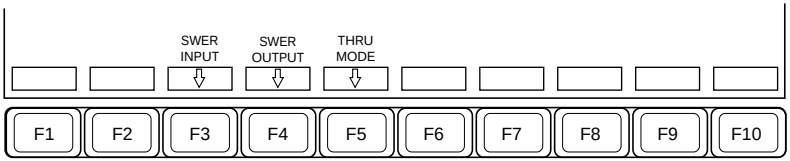
To display the software version numbers, press F7 (INFORMATION) in the SYSTEM menu.
The version numbers of the software installed in the HDS-7150 and BKDS-7017 appear.

Setup Relating to Input/Output Signals (INPUT/OUTPUT Menu)

To carry out setup operations relating to input/output signals, access the INPUT/OUTPUT menu.

Accessing the INPUT/OUTPUT Menu

In the SETUP menu, select item 2 (INPUT/OUTPUT).
The INPUT/OUTPUT menu appears.



Function key indications in the INPUT/OUTPUT menu

To select the next menu

When you have displayed the INPUT/OUTPUT menu, access the next menu according to the data item you wish to set.
The menus you can access from the INPUT/OUTPUT menu are listed in the following table, together with their functions, and the function keys you need to press to access them.

Menus accessed from the INPUT/OUTPUT menu

Menu	Functions	Function key	See page
SWITCHER INPUT	Adjusting the horizontal phase of a switcher input signal	F3 (SWER INPUT)	13-19
SWITCHER OUTPUT	Making settings relating to switcher output signals • Setting the phase relation between the external sync input signal and the output reference signal (The following settings must be done separately for each selected output signal.) • Clip adjustment (white clip and dark clip for luminance signal)	F4 (SWER OUTPUT)	13-20
THROUGH MODE	Making settings relating to through mode (the mode in which sync signals included in output signals are passed through unchanged, instead of being replaced by an internally generated sync signal) • Input through mode setting • Output through mode setting	F5 (THRU MODE)	13-23

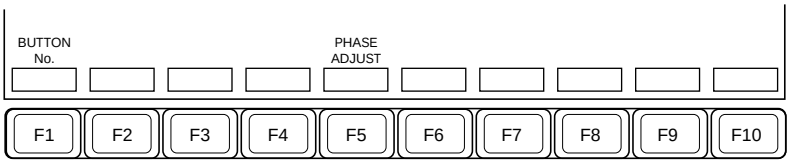
Carrying Out Setup Relating to Switcher Input Signals (SWITCHER INPUT Menu)

You can use the SWITCHER INPUT menu to adjust the horizontal phase of the input signal in the range –16 to +16 CK (clock cycles).

To carry out this adjustment, use the following procedure.

1 In the INPUT/OUTPUT menu, press F3 (SWER INPUT).

The SWITCHER INPUT menu appears.



Function key indications in the SWITCHER INPUT menu

For details of indications other than for the function keys in the SWITCHER INPUT menu, see "Indications in the SWITCHER INPUT menu" below.

2 Select the cross-point button to which the settings apply, using either of the following methods.

- Hold down F1 (BUTTON No.) and press the required cross-point button in the auxiliary bus bank.
- Hold down F1 (BUTTON No.) and use the cursor movement keys to select the required cross-point button.
- Hold down F1 (BUTTON No.) and turn control knob 2.
- Hold down F1 (BUTTON No.) and use the numeric keypad to enter the required cross-point number.

3 Press F5 (PHASE ADJUST), turning it to reverse video, and adjust control knob 4.

Indications in the SWITCHER INPUT menu

NO: cross-point button number
NAME: signal name
PHASE ADJUST: input signal phase adjustment value

Carrying Out Setup Relating to Switcher Output Signals (SWITCHER OUTPUT Menu)

You can use the two menu screens accessible from the SWITCHER OUTPUT menu for the following settings.

Setting in screen 1

Setting the phase relation between the external sync input signal and the output reference signal: Adjust in the range –28 to +84 µs.

Settings in screen 2

Clip adjustment: Make the following clip adjustments.

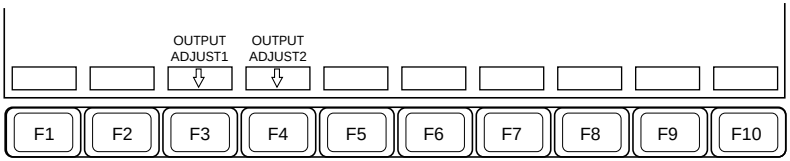
White clip value for luminance signal: Adjust in the range 0.0 to 110.0%.

Dark clip value for luminance signal: Adjust in the range –7.0 to 0.0%.

To carry out these settings, use the following procedure.

1 In the INPUT/OUTPUT menu, press F4 (SWER OUTPUT).

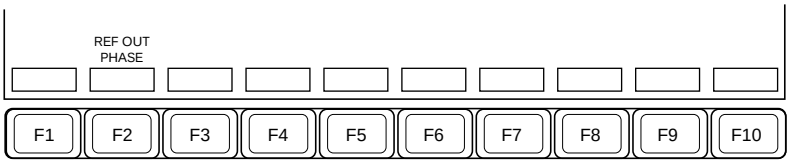
The SWITCHER OUTPUT menu appears.



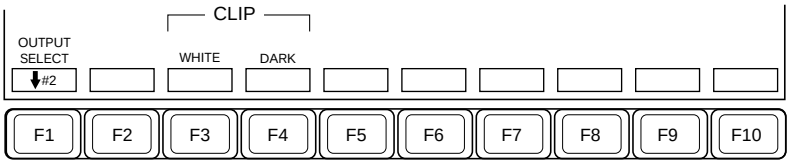
Function key indications in the SWITCHER OUTPUT menu

2 Carry out the operation in the following table according to the type of setting you wish to make.

Type of setting	Operation
Setting made in adjustment screen 1	Press F3 (OUTPUT ADJUST1) to switch to adjustment screen 1, then continue to step **3**.
Setting made in adjustment screen 2	Press F4 (OUTPUT ADJUST2) to switch to adjustment screen 2, then continue to step **3**.



Function key indications in adjustment screen 1



Function key indications in adjustment screen 2

(Continued)

3 Carry out the operation in the following tables to make the required setting.

Setting in adjustment screen 1

Setting	Operation
Setting the phase relation between the external sync input signal and the output reference signal	Press F2 (REF OUT PHASE), turning it to reverse video, and adjust with control knob 4.

Settings in adjustment screen 2

Before proceding to the operation in the following table to make the required setting, press F1 (OUTPUT SELECT) or turn control knob 2 to move the cursor and select the input signal to which the settings apply.

Selectable output signals: PGM OUTPUTS, PVW OUTPUT, ME OUTPUT, ME PVW OUTPUT, CLEAN OUTPUT, AUX BUS OUTPUT 1 to AUX BUS OUTPUT 5, EDIT PVW OUTPUT

Setting	Operation
White clip value for luminance signal	Press F3 (WHITE), turning it to reverse video, and adjust with control knob 4.
Dark clip value for luminance signal	Press F4 (DARK), turning it to reverse video, and adjust with control knob 4.

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Carrying Out Setup Relating to Through Mode (THROUGH MODE Menu)

You can use the THROUGH MODE menu for the following settings relating to through mode (the mode in which sync signals included in output signals are passed through unchanged, instead of being replaced by an internally generated sync signal).

- **Input through mode setting:** Set the input through mode on or off.
- **Output through mode setting:** Set the output through mode on or off.

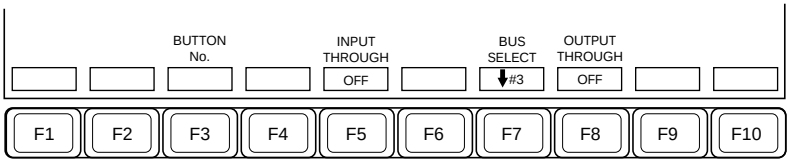
Notes

- The sync signal in the input signal is passed through on the output signal only if the input through mode and the output through mode are both on.
- The through mode function does not apply to internally generated signals.

To carry out these settings, use the following procedure.

1 In the INPUT/OUTPUT menu, press F6 (THRU MODE).

The THROUGH MODE menu appears.



Function key indications in the THROUGH MODE menu

2 Select the cross-point button to which the input through mode setting applies, using either of the following methods:

- Hold down F3 (BUTTON No.) and press the required cross-point button in the auxiliary bus bank.
- Hold down F3 (BUTTON No.) and use the cursor movement keys to select the required cross-point button.
- Hold down F3 (BUTTON No.) and turn control knob 2.
- Hold down F3 (BUTTON No.) and use the numeric keypad to enter the required cross-point number.

(Continued)

3 Press F5 (INPUT THROUGH) to set the input through mode on or off.

Pressing F5 toggles the setting on and off.

4 Press F7 (BUS SELECT) or turn control knob 3 to move the cursor and select the output bus to which the output through mode setting applies.

5 Press F8 (OUTPUT THROUGH) to set the output through mode on or off.

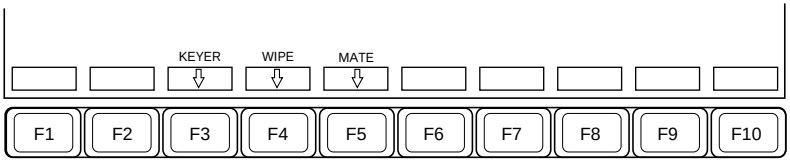
Pressing F8 toggles the setting on and off.

Setup Relating to Effects (EFFECT Menu)

To carry out setup operations relating to keyers, wipes and other effects, access the EFFECT menu.

Accessing the EFFECT Menu

In the SETUP menu, select item 3 (EFFECT).
The EFFECT menu appears.



Function key indications in the EFFECT menu

To select the next menu

When you have displayed the EFFECT menu, access the next menu according to the data item you wish to set.
The menus you can access from the EFFECT menu are listed in the following table, together with their functions, and the function keys you need to press to access them.

Menus accessed from the EFFECT menu

Menu	Functions	Function key	See page
KEYER	Making the following settings relating to keyers. • Toggling the key memory function on and off • Saving default values of clip, gain and density for individual keyers • Toggling the chroma key memory on or off, and making chroma key memory settings • Determining which to carry out first, masking or border processing	F3 (KEYER)	13-26
WIPE	Making the following settings relating to wipes. • Adjusting the wipe pattern center position • Adjusting the softness of the wipe edge	F4 (WIPE)	13-28
MATTE	Making the following settings relating to matte generators. • Toggling the illegal color limiter function on and off • Setting the luminance level maximum value • Setting the luminance level minimum value	F5 (MATTE)	13-29

Carrying Out Setup Relating to Keyers (KEYER Menu)

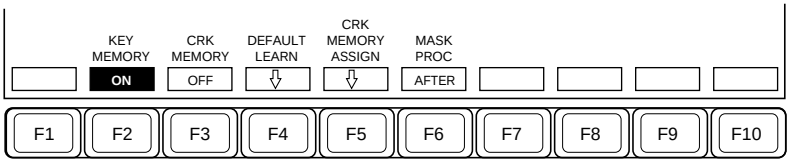
You can use the KEYER menu for the following settings:

- **Toggling the key memory function on and off**
- **Saving default values of clip, gain and density for individual keyers**
- **Toggling the chroma key memory function on and off**
- **Setting input signals for the six chroma key memories**
- **Determining which to carry out first, masking or border processing:**
  Determine whether to carry out masking after border processing (factory default setting) or before border processing.

To carry out these settings, use the following procedure.

1 In the EFFECT menu, press F3 (KEYER).

The KEYER menu appears.



Function key indications in the KEYER menu

2 Carry out the operation in the following table to make the required setting.

Setting	Operation
Toggling the key memory function on and off	Press F2 (KEY MEMORY). This toggles the setting on and off.
Saving default values of clip, gain and density	Use the following procedure. **1** Press F4(DEFAULT LEARN) to display the function key indications for saving default values. **2** According to the keyer for which you wish to save default values, press one of F1 (M/E KEY 1) to F6 (DSK 2). The current settings on the selected keyer are saved as the default values.
Toggling the chroma key memory on and off	Press F3 (CRK MEMORY). This toggles the setting on and off.

(Continued)

Setting	Operation
Making the chroma key memory settings	Use the following procedure. **1** Press F5 (CRK MEMORY ASSIGN), to display the CHROMA KEY MEMORY ASSIGN menu. **2** Either press F1 (MEMORY SELECT) or turn knob 2 to align the cursor with one of the six chroma key memories. **3** Hold down F8 (KEY BUS) and press the corresponding cross-point button in the auxiliary bus bank, or hold down F8 and turn knob 3 to select the input signal. To assign nothing, press F3 (OFF).
Determining whether to carry out masking after or before border processing	Press F6 (MASK PROC). This toggles the setting between AFTER and BEFORE.

Carrying Out Setup Relating to Wipes (WIPE Menu)

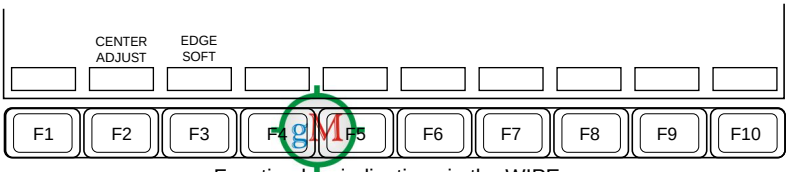
You can use the WIPE menu for the following settings.

- **Adjusting the wipe pattern center position:** You can adjust the center position of the wipe pattern horizontally and vertically in the range –15.0 to +15.0 pixels.
- **Adjusting the softness of the wipe edge:** You can adjust the softness of the wipe edge in the range –50.00 to +50.00%.

To carry out these settings, use the following procedure.

1 In the EFFECT menu, press F4 (WIPE).

The WIPE menu appears.



Function key indications in the WIPE menu

2 Carry out the operation in the following table to make the required setting.

Setting	Operation
Adjusting a wipe pattern center position	Press F2 (CENTER ADJUST), turning it to reverse video, and adjust the horizontal position with control knob 3 and the vertical position with control knob 4.
Adjusting the softness of a wipe edge	Press F3 (EDGE SOFT), turning it to reverse video, and adjust with control knob 4.

Carrying Out Setup Relating to Matte Generators (MATTE Menu)

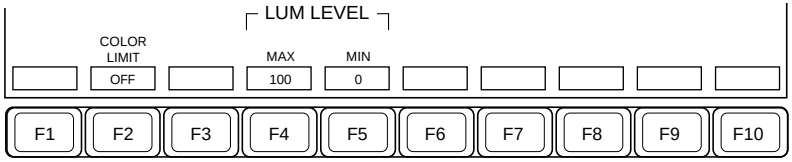
You can use the MATTE menu for the following settings relating to the built-in matte generator.

- **Toggling the illegal color limiter function on and off**
- **Setting the luminance level maximum value:** Toggle the luminance level maximum value between 100% and 107%.
- **Setting the luminance level minimum value:** Toggle the luminance level minimum value between 0% and –7%.

To carry out these settings, use the following procedure.

1 In the EFFECT menu, press F5 (MATTE).

The MATTE menu appears.



Function key indications in the MATTE menu

2 Carry out the operation in the following table to make the required setting.

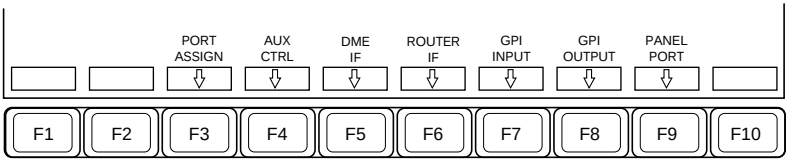
Setting	Operation
Toggling the illegal color limiter function on and off	Press F2 (COLOR LIMIT). This toggles the setting on and off.
Setting the luminance level maximum value	Press F4 (MAX). This toggles the setting.
Setting the luminance level minimum value	Press F5 (MIN). This toggles the setting.

Setup Relating to Interfaces With Peripheral Devices (PERIPH Menu)

To carry out setup operations relating to interfaces with peripheral devices, access the PERIPH menu.

Accessing the PERIPH Menu

In the SETUP menu, select item 4 (PERIPH).
The PERIPH menu appears.



Function key indications in the PERIPH menu

To select the next menu

When you have displayed the PERIPH menu, access the next menu according to the data item you wish to set.
The menus you can access from the PERIPH menu are listed in the following table, together with their functions, and the function keys you need to press to access them.

Menus accessed from the PERIPH menu

Menu	Functions	Function key	See page
PORT ASSIGN	Selecting the type of device connected to an RS-422A port of the switcher	F3 (PORT ASSIGN)	13-32
AUX CONTROL	Making the following settings relating to auxiliary bus control from an RS-422A port of the switcher. • Setting the control function for bus control from an RS-422A port • Setting the function for recalling auxiliary bus settings when executing a keyframe or snapshot	F4 (AUX CTRL)	13-33

(Continued)

Menus accessed from the PERIPH menu (Continued)

Menu	Functions	Function key	See page
DME INTERFACE [a)]	Making the following settings relating to interface settings for a digital multi effects • Making the reentry cross-point button setting • Setting the on-air tally function • Making the auxiliary bus setting for output to DMEs • Assigning DMEs for DME wipes	F5 (DME IF)	13-34
ROUTER INTERFACE	Setting the correspondence between the routing switcher output and the switcher input	F6 (ROUTER IF)	13-36
GPI INPUT	Making the following settings relating to switcher GPI inputs • Selecting the trigger polarity • Selecting the trigger action	F7 (GPI INPUT)	13-37
GPI OUTPUT	Making the following settings relating to switcher GPI outputs • Selecting the operation to cause the GPI output • Making the trigger selection	F8 (GPI OUTPUT)	13-39

a) This menu is displayed when you have selected “EXT” for “DME CONFIG” of the SYSTEM CONFIGURATION menu.

Selecting the Type of Device Connected to an RS-422A Port (PORT ASSIGN Menu)

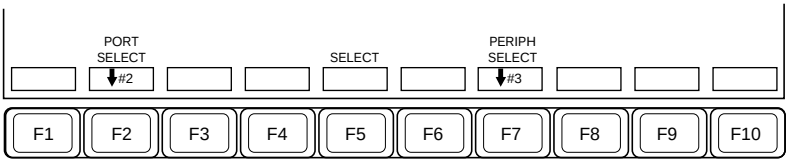
You can use the PORT ASSIGN menu to select the type of device connected to an RS-422A port of the switcher.
Select the type of device from the following:

- **When the port is EDITOR A/REMOTE 1:** editor A or a remote control panel
- **When the port is EDITOR B/REMOTE 2:** editor B or a remote control panel

To carry out these settings, use the following procedure.

1 In the PERIPH menu, press F3 (PORT ASSIGN).

The PORT ASSIGN menu appears.



Function key indications in the PORT ASSIGN menu

2 Press F2 (PORT SELECT) or turn control knob 2 to move the cursor and select EDITOR A/REMOTE 1 or EDITOR B/REMOTE 2 as the port to which the setting applies.

3 Press F7 (PERIPH SELECT) or turn control knob 3 to move the cursor and select the connected device.

4 Press F5 (SELECT) to confirm the selection.

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Carrying Out Setup Relating to Auxiliary Bus Control From an RS-422A Port (AUX CONTROL Menu)

You can use the AUX CONTROL menu for the following settings:

- **Setting the control function for bus control from an RS-422A port of the switcher:** For the control of the bus outputs from each of the following switcher ports, select ENBL (control enabled), DSBL (control disabled) or MANUAL (status determined by the ENABLE menu setting *(see page 11-4)*).

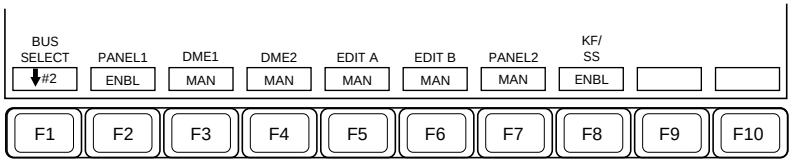
  PANEL 1, DME 1, DME 2, EDITOR A/REMOTE 1, EDITOR B/REMOTE 2, PANEL 2

- **Selecting the function setting for recalling auxiliary bus settings when executing a keyframe or snapshot:** Select whether when executing a keyframe or snapshot to recall the saved auxiliary bus settings (ENBL) or keep the current settings unchanged (DSBL).

To carry out these settings, use the following procedure.

1 In the PERIPH menu, press F4 (AUX CTRL).

The AUX CONTROL menu appears.



Function key indications in the AUX CONTROL menu

2 Press F1 (BUS SELECT) or turn control knob 2 to move the cursor and select the bus to which the settings apply from buses AUX 1 to AUX 5 or the edit preview (EDIT PVW) bus.

(Continued)

3 Carry out the operation in the following table to make the required setting.

Setting	Operation
Setting the control function for bus control from an RS-422A port	According to the switcher port for which you wish to make the setting, press one of F2 (PANEL1) to F7 (PANEL2). • F2 toggles the setting between ENBL and DSBL. • F3 to F7 cycle the setting through ENBL, DSBL and MANUAL.
Setting the function for recalling auxiliary bus settings when executing a keyframe or snapshot	Press F8 (KF/SS). This toggles the setting between ENBL and DSBL.

Carrying Out Setup Relating to Interface Settings for a Digital Multi Effects (DME INTERFACE Menu)

Note

This menu is displayed when you have selected “EXT” for “DME CONFIG” of the SYSTEM CONFIG menu.

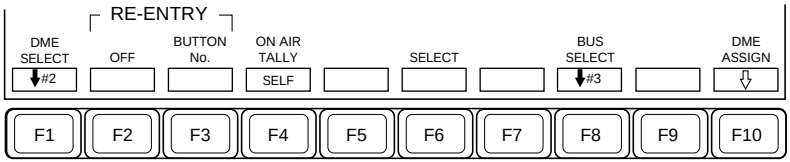
You can use the DME INTERFACE menu for the following settings.

- **Making the reentry cross-point button setting:** Select the cross-point button number for the required auxiliary bus output which is connected to a DME and reinput to the switcher from a DME output.
- **Setting the on-air tally function:** Select the tally output mode to be applied when a DME output is selected on the switcher.
  SELF: When a DME output is selected on the switcher, a tally is output regardless of the DME state.
  OFF: No on-air tally signals for the signals output from the DME unit are output from the SERIAL TALLY connector.
  Using the BKDS-7700 Tally Interface Unit to process the DME tally information output from the HDME-7000 makes it possible to obtain accurate tally signals for the DME signals.
- **Making the auxiliary bus setting for output to DMEs:** Select the required auxiliary bus from AUX 1 to AUX 5 connected as video/key input to DMEs.
- **Assigning DMEs for DME wipes:** Select the DMEs used for DME wipes on each bank.

To carry out these settings, use the following procedure.

1 In the PERIPH menu, press F5 (DME IF).

The DME INTERFACE menu appears.



Function key indications in the DME INTERFACE menu

2 Press F1 (DME SELECT) or turn control knob 2 to move the cursor and select the required DME input to which the settings apply.

3 Make the required settings in the order of (1) to (4) as shown in the table below.

Setting	Operation
(1) Making the reentry cross-point button setting	Hold down F3 (BUTTON No.) and press the required cross-point button in the auxiliary bus bank. Alternatively, hold down F3 and turn control knob 3 to select the required cross-point button. **When not using reinput to the switcher** Press F2 (OFF), switching the REENTRY indication to OFF.
(2) Making the auxiliary bus setting for output to DMEs	Use the following procedure. **1** Press F8 (BUS SELECT) or turn control knob 3 to move the cursor and select the required auxiliary bus output. **2** Press F6 (SELECT) to confirm the selection.
(3) Setting the on-air tally function	Press F4 (ON AIR TALLY). This toggles the setting between SELF and OFF.
(4) Assigning DMEs for DME wipes	Use the following procedure. **1** Press F10 (DME ASSIGN), to display the function key indications for DME assignment. **2** Press F2 (M/E SELECT) or turn control knob 2 to move the cursor and select: M/E or P/P. **3** Press F6 (DME SELECT) or turn control knob 3 to move the cursor and select the required DME. When not using the DME wipe function, select “NO ASSIGN”. **4** Press F4 (SELECT) to confirm the DME selection.

Carrying Out Setup Relating to the Interface to a Routing Switcher (ROUTER INTERFACE Menu)

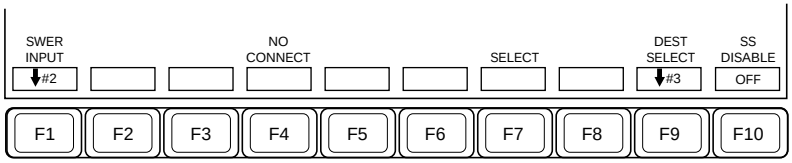
When the output of a routing switcher is input to the switcher, you can set the correspondence in a menu. In this way, for example, the signal names assigned on the routing switcher can be displayed on the control panel.

Refer to the routing switcher manual for details of setting the signal names, and see page 4-5 for the signal name display on the control panel.

To set the correspondence between the routing switcher output and the switcher input, use the following procedure.

1 In the PERIPH menu, press F6 (ROUTER IF).

The ROUTER INTERFACE menu appears.



Function key indications in the ROUTER INTERFACE menu

2 Press F1 (SWER INPUT), or turn control knob 2 to select the switcher input signal.

3 Press F9 (DEST SELECT), or turn control knob 3 to align the cursor with the name of the routing switcher bus (DESTINATION).

4 Press F7 (SELECT).

This confirms the correspondence between the routing switcher output and the switcher input.
To end the connection, press F4 (NO CONNECT).

5 To inhibit cross-point switching by the routing switcher when recalling a snapshot, press F10 (SS DISABLE), turning it on.

Carrying Out Setup Relating to GPI Inputs (GPI INPUT Menu)

You can use the GPI INPUT menu for the following settings relating to GPI inputs.

- **Selecting the trigger polarity:** Select the trigger polarity from the following five kinds.

  ⎍: Trigger on the rising edge of an input pulse.

  ⎎: Trigger on the falling edge of an input pulse.

  ⨯: Trigger when the input changes polarity.

  NOP: No triggering by input pulse.

  LEVEL: When there is no input or the input level is high, the aspect ratio remains 4:3. When the input level turns low, the aspect ratio toggles to 16:9.

- **Selecting the trigger action:** Select the action triggered by the GPI input. When the trigger polarity is set to LEVEL, you cannot select any action other than toggling of the aspect ratio as described above.

  When the trigger polarity is set to other than LEVEL, select the required action from the following:

  CUT, AUTO TRANS (auto transition), KEY 1 CUT, KEY 2 CUT, KEY 1 MIX, KEY 2 MIX, FREEZE, CLEAR, FTB (fade-to-black), SS RECALL (recall snapshot), EFF RECALL (recall effect), RECALL&RUN (recall and run effect), KF RUN (run keyframe), KF STOP (stop keyframe), KF REWIND (rewind keyframe)

Combinations of operating bank/function and trigger action

In this menu you can select different trigger actions from the GPI input for each operating bank or function, but not all combinations are possible. Only those combinations which are available appear on the menu screen.

For snapshot and keyframe actions, it is not possible to make different settings for different banks or functions. If you make different settings for different banks or functions, the most recent setting applies to all banks or functions.

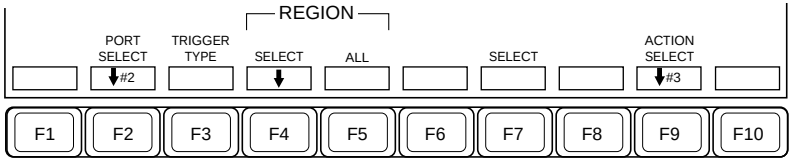
To carry out these settings, use the following procedure.

Note

Disable the GPI ports using the port enable function of the MISC menu *(see page 11-3)* beforehand. After completing the settings with the GPI INPUT menu, enable the GPI ports using the MISC menu.

1 In the PERIPH menu, press F7 (GPI INPUT).

The GPI INPUT menu appears.



Function key indications in the GPI INPUT menu

2 Press F2 (PORT SELECT) or turn control knob 2 to move the cursor and select the required GPI input port.

3 Press F3 (TRIGGER TYPE), and select the trigger polarity.

Pressing F3 cycles the setting through ⊓, ⊔, ×, NOP, and LEVEL.

If you selected LEVEL in this step, continue to step **5**.

4 Press F4 (SELECT) to move the cursor and select the operating bank of the selected device on which the GPI input trigger action is to be carried out.

To apply the same action to all selectable banks
Press F5 (ALL).

5 Press F9 (ACTION SELECT) or turn control knob 3 to move the cursor and select the action to be carried out when the trigger occurs.

To delete a selected action
Select “NO USE” with the cursor.

6 Press F7 (SELECT) to confirm the action selection.

When you have selected any of SS RECALL?, EFF RECALL?, and RECALL?&RUN?
Further specify register numbers using the numeric keypad and press the ENTER button.

7 To trigger actions on more than one operating bank from the GPI input from the same GPI input port, repeat steps **4** to **6** for each bank.

8 To trigger actions from the GPI input from a different GPI input port, repeat steps **2** to **7** for each GPI input port.

Carrying Out Setup Relating to GPI Outputs (GPI OUTPUT Menu)

You can use the GPI OUTPUT menu for the following settings relating to GPI outputs.

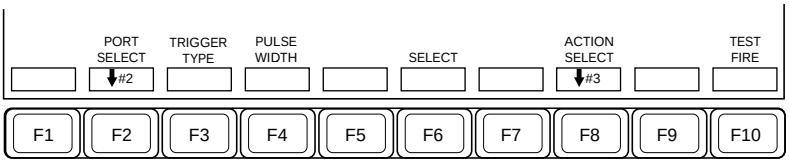
- **Selecting the operation to cause the GPI output:** Select the operation to cause the GPI output from the following.
  Any of cut or auto transition on either of M/E and PGM/PST, or key 1 on (tally) or key 2 on (tally) on M/E, or DSK 1 on PGM/PST.
- **Making the trigger selection:** Select the trigger polarity and output pulse width for a GPI output.
  Trigger polarity: Select from the following five kinds.
  - ⎍ **:** When the trigger occurs, the relay contact opens or the output level turns high, and then that state is maintained for the specified pulse width.
  - ⎎ **:** When the trigger occurs, the relay contact closes or the output level turns low, and then that state is maintained for the specified pulse width.
  - ⨯ **:** When the trigger occurs, the relay contact state or output level alternately switches between closed and open or between high and low.
  - **NOP:** The trigger has no effect on the output relay state/output level.
  - **TALLY:** The trigger is used as a key tally. When the key is switched on, the relay contact closes or the output level turns low.

  Output pulse width: Set in the range 1 to 60 fields.

To carry out these settings, use the following procedure.

1 In the PERIPH menu, press F8 (GPI OUTPUT).

The GPI OUTPUT menu appears.



Function key indications in the GPI OUTPUT menu

2 Press F2 (PORT SELECT) or turn control knob 2 to move the cursor and select the required GPI output port.

3 Press F3 (TRIGGER TYPE), and select the trigger polarity.

Pressing F3 cycles the setting through ⊓, ⊔, ×, NOP, and TALLY.

If you selected TALLY, continue to step **5**.

4 Press F4 (PULSE WIDTH), then turn control knob 4 to adjust the output pulse width.

5 Press F8 (ACTION SELECT) or turn control knob 3 to move the cursor and select the action causing the GPI output.

6 Press F6 (SELECT) to confirm the selection of the action causing the GPI output.

The action you have selected appears in the row for the output port selected in step **2**.

7 To make settings for more than one GPI output port, repeat steps **2** to **6** for each GPI output port.

8 To test the operation of a trigger, Press F10 (TEST FIRE).

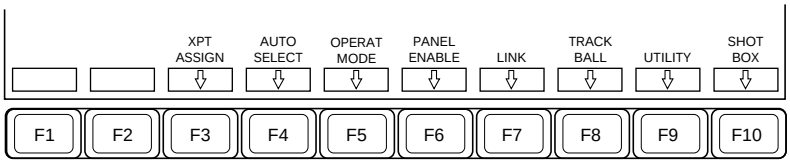
This outputs a trigger from the GPI output port selected in step **2**.

Setup Relating to Operations From the Control Panel (OPERATION Menu)

To carry out setup operations relating to operations from the control panel, access the OPERATION menu.

Accessing the OPERATION Menu

In the SETUP menu, select item 5 (OPERATION).
The OPERATION menu appears.



Function key indications in the OPERATION menu

To select the next menu

When you have displayed the OPERATION menu, access the next menu according to the data item you wish to set.
The menus you can access from the OPERATION menu are listed in the following table, together with their functions, and the function keys you need to press to access them.

Menus accessed from the OPERATION menu

Menu	Functions	Function key	See page
XPT ASSIGN	Making the following settings relating to assigning an input signal to a cross-point button • Input signal assignment • Allocating a name to an input signal	F3 (XPT ASSIGN)	13-43
AUTO SELECT	Allocating a key source signal to a key fill	F4 (AUTO SELECT)	13-47
OPERATION MODE	• Setting the background transition flip-flop mode • Setting the cross-point button shift function • Setting the cross-point shift button lock/unlock function • Setting the programmable button function • Setting custom modes	F5 (OPERAT MODE)	13-48

(Continued)

Menus accessed from the OPERATION menu (Continued)

Menu	Functions	Function key	See page
PANEL ENABLE	• Setting the screen saver delay time • Selecting the control over each bank given to the control panel • Setting the fade-to-black function	F6 (PANEL ENABLE)	13-53
LINK	Making the following settings for linking two functions • Linking two buses • Linking a particular button to a GPI output port	F7 (LINK)	13-55
TRACK BALL	Making the settings relating to the trackball and Z-ring functions of the BKDS-7031 DME Control Panel Unit.	F8 (TRACK BALL)	13-59
UTILITY	Assigning functions to the UTILITY buttons	F9 (UTILITY)	13-61
SHOTBOX	Assigning registers to the buttons of the BKDS-7033 Memory Recall Control Panel Unit	F10 (SHOT BOX)	13-63

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Carrying Out Setup Relating to Assigning an Input Signal to a Cross-Point Button (XPT ASSIGN Menu)

You can use the XPT ASSIGN menu for the following settings.

- **Input signal assignment:** Assign the input signal which you wish to assign to the selected cross-point button.
- **Allocating a name to an input signal:** You can allocate a name of up to eight alphanumeric characters to the signal assigned to a cross-point button. (If the name has more than four characters, the first two and last two appear in the source name indications on the control panel.)

Relationship between input signals assigned to cross-point buttons and buses

The input signals assigned to cross-point buttons can be separated into three groups, according to which buses they can be selected on.

- **Signals which can be selected on any bus**
  PRIMARY 1 to 15, BLACK, M/E PGM, CCR OUT1, CCR OUT2

- **Signals which can be selected on auxiliary buses AUX 1 to AUX 6, and edit preview bus**
  M/E COLOR BKGD
  KEY1 PROC a) VIDEO, KEY1 PROC a) KEY,
  KEY2 PROC a) VIDEO, KEY2 PROC a) KEY,
  M/E PVW (KEY)
  P/P COLOR BKGD, P/P PVW (KEY), P/P CLEAN (KEY)

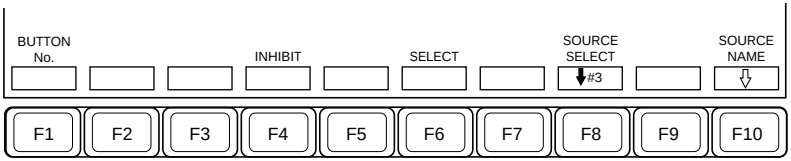
  a) PROC (processed key)

- **Signal which can be selected on the M/E and PGM/PST buses**
  SELF BKGD
  (Example: M/E COLOR BKGD for the M/E bank)
  If you specify SELF COLOR BKGD for the AUX bus, M/E COLOR BKGD for the M/E bank is selected.

To carry out these settings, use the following procedure.

1 In the OPERATION menu, press F3 (XPT ASSIGN).

The XPT ASSIGN menu appears.



Function key indications in the XPT ASSIGN menu

2 Select the cross-point button to which you wish to assign an input signal, using either of the following methods.

- Hold down F1 (BUTTON No.) and press the required cross-point button in the auxiliary bus bank.
- Hold down F1 (BUTTON No.) and use the cursor movement keys to select the required cross-point button.
- Hold down F1 (BUTTON No.) and turn control knob 2.
- Hold down F1 (BUTTON No.) and use the numeric keypad to enter the required cross-point number.

The indication of the button you have pressed switches to reverse video.

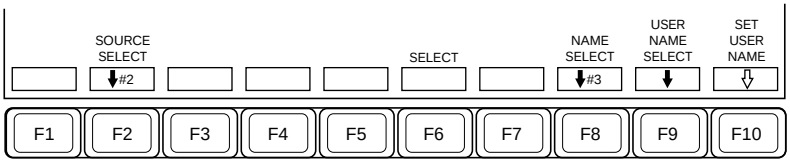
3 Press F8 (SOURCE SELECT) or turn control knob 3 to move the cursor and select the required input signal.
When not assigning any signal to the cross-point button (disabling the cross-point button), press F4 (INHIBT).

4 Press F6 (SELECT) to confirm the input signal selection.

Continue to step **5** only when you wish to assign a name to the input signal.

5 Press F10 (SOURCE NAME).

The SOURCE NAME menu appears.



Function key indications in the SOURCE NAME menu

6 Press F2 (SOURCE SELECT) or turn control knob 2 to move the cursor and select the signal to which you wish to assign a name.

7 Either press F8 (NAME SELECT) or turn control knob 3 to move the cursor; or press F9 (USER NAME SELECT) to move the cursor, and then select the required signal name.

To enter a new signal name
In the list of example signal names, select USER.

8 Press F6 (SELECT).
When you have selected a signal name attached with "?" in step **7**, further specify the required number and press the ENTER button.

- If you selected USER in step **7**, a text input screen appears. In this case, advance to step **9**.
- In other cases, the name selection is confirmed.

9 Using the keyboard displayed on the screen and the numeric keys in the numeric keypad section, enter a name of up to eight characters, and press the F9 (ENTER) or the ENTER button in the numeric keypad section to confirm the name.

For details of the input method, see page 3-10.

Creating or changing the signal name selected with F9 (USER NAME SELECT)

Use the following procedure.

1 Press F10 (SET USER NAME).

A text input screen appears.

2 Press F1 (SET USER NAME) or turn control knob 2 to move the cursor and select free space for creating a new signal name or select the existing signal name to be corrected.

3 Enter a new signal name as in step **9** of the foregoing procedure.

To enable the setting of a signal name using steps **7** and **8** of the foregoing procedure, press F6 (?) to postfix "?" to the signal name.

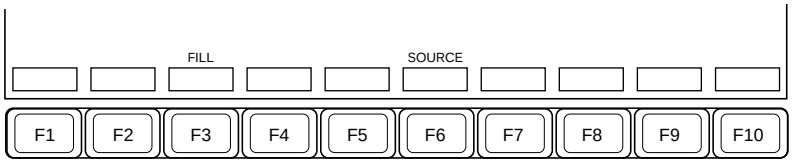
Allocating a Key Source Signal to a Key Fill (AUTO SELECT Menu)

You can use the AUTO SELECT menu to allocate a key source signal to a key fill. When you carry out a key operation on the M/E or PGM/PST bank in AUTO SELECT mode, this key source signal is automatically used.

To carry out these settings, use the following procedure.

1 In the OPERATION menu, press F4 (AUTO SELECT).

The AUTO SELECT menu appears.



Function key indications in the AUTO SELECT menu

2 Select the key fill signal to which you wish to allocate a key source signal, using either of the following methods:

- Hold down F3 (FILL) and press the required cross-point button in the auxiliary bus bank.
- Hold down F3 (FILL) and use the cursor movement keys to select the required cross-point button.

3 Select the key source signal you wish to allocate to the key fill, using either of the following methods.

- Hold down F6 (SOURCE) and press the required cross-point button in the auxiliary bus bank.
- Hold down F6 (SOURCE) and use the cursor movement keys to select the required cross-point button.

Changing Switcher Functions (OPERATION MODE Menu)

You can use the OPERATION MODE menu for the following settings.

- **Setting the background transition flip-flop mode:** Toggle between the bus flip-flop mode (“ON” setting) and bus fixed mode (“OFF” setting) for carrying out background transitions.
- **Setting the cross-point button shift function:** Select the cross-point button shift function setting from the following.
  - **RIGHT:** The shift function is enabled with the rightmost button (button 28) as the shift button.
  - **LEFT:** The shift function is enabled with the leftmost button (button 0) as the shift button.
  - **OFF:** The shift function is disabled.
- **Settintg the cross-point shift button lock/unlock function:** Whether or not the shift button locks when pressed.
  - **OFF:** The shift button does not lock. That is, to shift a cross-point button selection, you must always hold down the shift button.
  - **ON:** When you press the shift button it lights, and locks, shifting the cross-point button selection. To release the lock, press the shift button once more.

    When the signal selection in the bank changes with the progress of the transition, the state of the shift button automatically changes so that the cross-point button for the currently selected signal lights.
  - **HOLD:** The shift button locks as described above for the ON setting, but the state of the shift button does not change with the progress of the transition.
- **Setting the programmable button function:** You can assign functions to the programmable buttons on the control panel. The programmable buttons and functions available for allocation are as follows.

Functions assignable to the programmable buttons

Programmable button	Functions available for allocation
TR TYPE NAM & SUPER MIX: NAM button and SUPER MIX button of the transition control section of each bank	**NAM & SUPER MIX:** select NAM or SUPER MIX as the transition type (factory default setting) **KEY1, KEY2 ON:** switch key 1 and key 2 on or off. **Mix type setting when "KEY1, KEY2 ON" is selected** Select item 2 (LIMIT/S-MIX) of the BKGD/TRANS menu, and press one of F4 (NORMAL), F5 (NAM) and F6 (SUPER) to select the mix type. **Note** This setting is common to M/E and PGM/PST bank.
ORTHG: ORTHG button on the DME control panel	**ORTGH:** The trackball functions as a positioner only in the one of the X- and Y-directions in which it is moved more. **VTR:** The DME control panel functions as a VTR tape transport controller.
ALL: ALL button in the numeric keypad section	Specify one of the 12 sub-register selection buttons as the button to be selected when the ALL button is pressed.

• **Setting custom modes:** You can make the following custom settings for the operating mode of parts of the control panel.

a) Setting the method of selecting the reference channel in the numeric keypad section

Select the method of making the corresponding sub-register selection button light green when selecting the reference channel in the numeric keypad section.

MODE1: Hold down the SNAPSHOT button or EFF button, and press the corresponding sub-register selection button to cause it to light green. (Factory default setting)

MODE2: Press a sub-register selection button which is off or lit amber to select the corresponding sub-register as the reference channel. To cancel the reference channel selection, press the button lit green, turning it off.

(Continued)

b) Making the settings relating to the lighting of buttons when the same signal is assigned to more than one cross-point button

Select the mode of button lighting to be used when one of the buttons to which the same signal has been assigned is pressed.

MODE1: Of the buttons to which the same signal has been assigned, only the button of the smallest number lights. (Factory default setting)

MODE2: All the buttons to which the same signal has been assigned light.

c) Fader lever operation settings

Select the way in which the lever position and the progress of the transition are related.

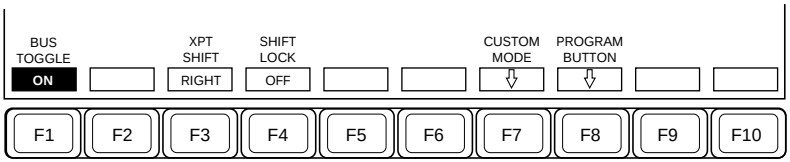
MODE1: The transition progression is linear, according to the position of the lever. (Factory default setting)

MODE2: The lever position and the transition progression are related by an S-curve. The transition is more gradual when the lever is closer to the end of its travel.

To carry out these settings, use the following procedure.

1 In the OPERATION menu, press F5 (OPERAT MODE).

The OPERATION MODE menu appears.



Function key indications in the OPERATION MODE menu

2 Carry out the operation in the following table to make the required setting.

Setting	Operation
Setting the background transition flip-flop mode	Press F1 (BUS TOGGLE). This toggles the setting between ON and OFF.
Setting the cross-point button shift function	Press F3 (XPT SHIFT). This cycles the setting through OFF, RIGHT and LEFT.
Setting the cross-point shift button lock/ unlock function	Press F4 (SHIFT LOCK). Pressing the button cycles the setting through OFF, ON and HOLD.
Setting custom modes	Skip to step **3.**
Setting the programmable button function (for other than the ALL button in the numeric keypad section)	Carry out the following procedure. **1** Press F8 (PROGRAM BUTTON). The PROGRAMMABLE BUTTON menu appears. **2** Hold down F1 (PROGRAM BUTTON), and from the flashing programmable buttons, press the desired one. The selected button name in the list on the screen changes to reverse video. **3** Either press F8 (FUNC SELECT) or turn knob 3 to align the cursor with the desired function from the list. **4** Press F6 (SELECT). This assigns the function selected in step **3** to the button selected in step **2.**
Setting the function of the ALL button in the numeric keypad section	Carry out the following procedure. **1** Press F8 (PROGRAM BUTTON). The PROGRAMMABLE BUTTON menu appears. **2** Press F10 (DEFINE ALL). The ALL BUTTON DEFINE menu appears. **3** Press F1 (SELECT) and align the cursor with the block that contains the desired button. Depending on the selected block, the button names that can be assigned to other function keys than F1 appear. **4** Press the function keys as required to highlight the function key indications for the required functions while not highlighting the function key indications for the functions not required.

3 Press F7 (CUSTOM MODE).

The CUSTOM MODE menu appears.

(Continued)

4 Carry out the operation shown in the following table corresponding to the desired setting.

Setting	Operation
Setting the method of reference channel selection using the numeric keypad section	Press F3 (REF SEL MODE). This toggles between MODE1 and MODE2.
Making the settings relating to the lighting of buttons when the same signal is assigned to more than one cross-point button	Press F5 (XPT TALLY). This toggles between MODE1 and MODE2.
Setting the fader lever function	Press F7 (FADER CURVE). This toggles between MODE1 and MODE2.

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Making Settings Relating to Control Panel Operation, etc. (PANEL ENABLE Menu)

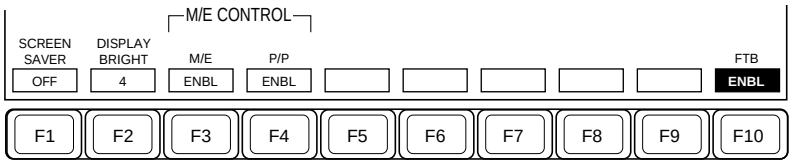
You can use the PANEL ENABLE menu for the following settings:

- **Setting the screen saver delay time:** Select the delay time until the screen saver comes into operation after the last control panel operation. The settings are: OFF (no screen saver function), 1, 3, 5, or 10 minutes.
- **Adjusting the brightness of the display:** Adjust the source name display and numeric keypad section display
- **Selecting the control over the banks given to the control panel:** Select the control given to the control panel over each bank individually.
  INHBT: Control is disabled. The display functions of the particular bank also do not operate.
  DSBL: Control is disabled. The display functions of the particular bank, however, do operate.
  ENBL: Control is enabled. The display functions of the particular bank also operate.
- **Setting the fade-to-black function:** Select whether to enable (ENBL) or disable (DSBL) the fade-to-black function.

To carry out these settings, use the following procedure:

1 In the OPERATION menu, press F6 (PANEL ENABLE).

The PANEL ENABLE menu appears.



Function key indications in the PANEL ENABLE menu

2 Carry out the operation in the following table to make the required setting.

Setting	Operation
Setting the screen saver delay time	Press F1 (SCREEN SAVER). This cycles the setting through OFF, 1, 3, 5, and 10.
Adjusting the brightness of the source name display and numeric keypad section display	Press F2 (DISPLAY BRIGHT). This cycles the setting through 1, 2, 3, and 4. The larger the number, the higher the brightness.
Selecting the control over the banks given to the control panel	Press F3 (M/E) or F4 (P/P) according to the bank for which you wish to make the setting. This cycles the setting through INHBT, DSBL, and ENBL.
Setting the fade-to-black function	Press F10 (FTB). This toggles the setting between ENBL and DSBL.

Linking Two Functions (LINK Menu)

You can make the following settings in the LINK menu.

- **Linking operations on two buses:** You can set up one bus (the master bus) so that operations on another bus are linked to it. You can set up a maximum of 16 such linkages.
- **Linking a specified button to a GPI output port:** You can set up a button on the switcher control panel (the master button) so that when it is pressed a GPI signal is output from a particular GPI output port.

Linking operations on two buses

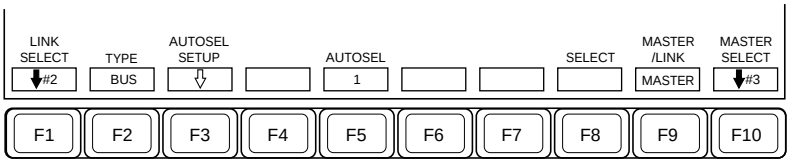
Use the following procedure.

1 In the OPERATION menu press F7 (LINK).

The LINK menu appears.

2 Press F1 (LINK).

The BUS/GPI menu appears.



Function key indications in the BUS/GPI LINK menu (When F2 is set to BUS)

3 Press F1 (LINK SELECT) or turn knob 2 to align the cursor with the link you wish to select from the list.

4 Press F2 (TYPE) to select the type of link.

OFF: No operation.
BUS: Link two buses.
GPI: Link a button on the control panel to a GPI output port.

- When you select “BUS”, proceed to step **5**.
- If you select “GPI”, continue with the procedure in the next section, “Linking a button to a GPI output port”.

(Continued)

5 Press F9 (MASTER/LINK) to set F9 to “MASTER”.

The indication for F10 changes to “MASTER SELECT”.

6 Press F10 (MASTER SELECT) or turn knob 3 to align the cursor with the bus you wish to select as the master, then press F8 (SELECT).

This selects the bus with which the cursor is aligned as the master bus.

7 Press F9 (MASTER/LINK) to set F9 to “LINK”.

The indication for F10 changes to “LINK SELECT”.

8 Press F10 (LINK SELECT) or turn knob 3 to align the cursor with the bus you wish to link to the master bus selected in step **6**, then press F8 (SELECT).

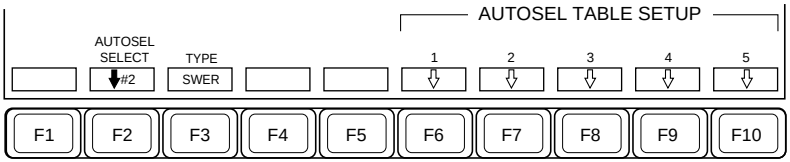
This confirms the selection of the bus with which the cursor is aligned.

9 Press F5 (AUTOSEL) to select one of the five “auto select tables” in which are set the correspondences of cross-point buttons between the two buses.

To change the auto select table setting, proceed to step **10**.

10 Press F3 (AUTOSEL SETUP).

The AUTO SEL SETUP menu appears.



Function key indications in the AUTOSEL SETUP menu

11 Press F2 (AUTOSEL SELECT), to align the cursor with the auto select table you wish to select.

12 Press F3 (TYPE) to select whether the cross-point auto select function applies to the internal bus (the HDS-7150 switcher bus) or to the external bus (the bus of the routing switcher connected to the HDS-7150).

SWER: The auto select function applies to the internal bus.
ROUTER: The auto select function applies to the external bus.

13 Press F6 (1) to F10 (5).

The AUTOSEL TABLE SETUP (1/2/3/4/5) menu appears.
The method of using this menu is the same as that of the AUTO SELECT menu. See the section "Allocating a Key Source Signal to a Key Fill (AUTO SELECT Menu)" *(page 13-47)*.

Linking a button to a GPI output port

After carrying out steps **1** to **4** of the procedure in the previous section, "Linking operations on two buses", continue with the following steps.

5 Press F9 (MASTER/LINK) to set F9 to "MASTER".

The indication for F10 changes to "MASTER SELECT".

6 Press F10 (MASTER SELECT) or turn knob 3 to align the cursor with the button you wish to select as the master button (the button causing the GPI output), then press F8 (SELECT).

This selects the button with which the cursor is aligned as the "master button".

7 Press F9 (MASTER/LINK) to set F9 to "LINK".

The indication for F10 changes to "LINK SELECT".

8 Press F10 (LINK SELECT) or turn knob 3 to align the cursor with the GPI port (1 to 8) you wish to link to the "master button" selected in step **5**, then press F8 (SELECT).

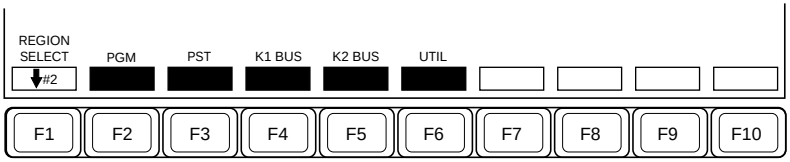
This confirms the selection of the GPI port with which the cursor is aligned.

(Continued)

9 To set the time delay (0 to 300 fields) between the output of the GPI signal and the execution of the function allocated to the “master button”, press F6 (DELAY) and turn knob 4 to set the value.

10 Press F4 (ENABLE BUS).

The ENABLE BUS menu appears.



Function key indications in the ENEBLE BUS menu (when M/E is selected)

11 Press F1 (REGION SELECT) or turn knob 2 to align the cursor with the bank (M/E, P/P, etc.) you wish to select.

The function key indications for F2 and subsequent keys change to show the bus names, according to the bank with which the cursor is aligned.

12 Press the function keys corresponding to the buses, making the keys be displayed in reverse video to enable the link to the GPI output port, or making them be displayed in normal video to disable the link.

Adjusting the Trackball and Z-Ring (TRACK BALL Menu)

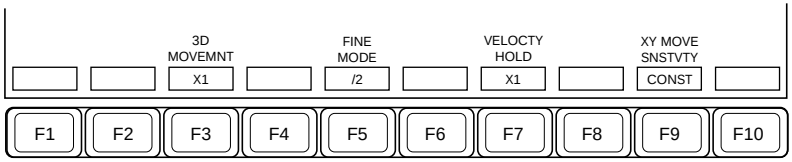
This menu adjusts various functions of the trackball and Z-ring on the BKDS-7031 DME Control Panel Unit (DME control section).

Selecting the speed of image movement

This selects the speed of movement of the image under trackball and Z-ring control.

1 In the OPERATION menu press F8 (TRACK BALL).

The TRACK BALL menu appears.



Function key indications in the TRACK BALL menu

2 Press F3 (3D MOVEMENT) to change the setting.

Pressing F3 cycles through the following three settings:

- **×1:** Standard speed
- **×2:** Double speed
- **×4:** Quadruple speed

Selecting the fineness of image movement produced by the SHIFT button

There are three options for the degree of fineness of control provided by holding down the SHIFT button on the keyframe control panel during a trackball or Z-ring operation, selected by pressing F5 (FINE MODE) as follows.

- **/2:** 1/2 of speed when the SHIFT button is not held down
- **/4:** 1/4 of speed when the SHIFT button is not held down
- **/8:** 1/8 of speed when the SHIFT button is not held down

Selecting the speed of image movement produced by the VELO HOLD button

There are three options for the maintained speed of image movement produced by the VELO HOLD button, selected by pressing F7 (VELOCTY HOLD) as follows.

×1: The image continues moving at the detected speed (the speed before you removed your hand from the trackball or Z-ring)

/2: The image continues moving at 1/2 of the detected speed.

/4: The image continues moving at 1/4 of the detected speed.

Selecting the z-coordinate-dependent trackball response

There are two options for the relation between trackball response and the position on the z-axis, selected by pressing F9 (XY MOVE SNSTVTY) as follows.

CNSTNT (CONSTANT): The speed of image movement in response to the trackball does not depend on the position along the z-axis.

DPNDZ (DEPEND ON Z): The speed of image movement in response to the trackball increases as the position recedes into the distance (i.e. as the z-coordinate increases).

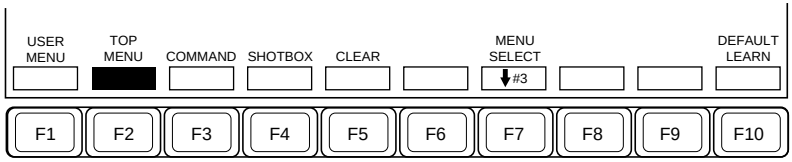
This mode provides a lighter operating touch when carrying out a transformation in the x- and y-directions on an image positioned well into the screen (i.e. with a large z-coordinate).

Assigning Functions to the UTILITY Buttons (UTILITY Menu)

To assign menu recall or command execution functions to the 24 UTILITY buttons, use the following procedure.

1 In the OPERATION menu press F9 (UTILITY).

The UTILITY menu appears.



Function key indications in the UTILITY menu

2 Press one of F1 to F5 to select the type of function to be assigned.
F1 (USER MENU): Access a frequently used submenu.
F2 (TOP MENU): Access the DME or other top menu.
F3 (COMMAND): Toggle a particular function on and off.
F4 (SHOT BOX): Memory recall
F5 (CLEAR): Cancel the function assignment.

All of the UTILITY buttons flash.
If you selected F5 (CLEAR), skip to step **4**; otherwise advance to step **3**.
Depending on the function you selected in step **2**, operate as follows.

3
- If in step **2** you selected F1 (USER MENU), display the submenu you wish to assign.
- If in step **2** you selected F2 (TOP MENU), press F7 (MENU SELECT) or turn control knob 3 to align the cursor with the top menu you wish to assign.
- If in step **2** you selected F3 (COMMAND), press F7 (COMMAND SELECT) or turn control knob 3 to align the cursor with the command you wish to assign.
- If in step **2** you selected F4 (SHOTBOX), press F7 (SHOTBOX SELECT) or turn control knob 3 to align the cursor with the SHOT BOX number you wish to assign.

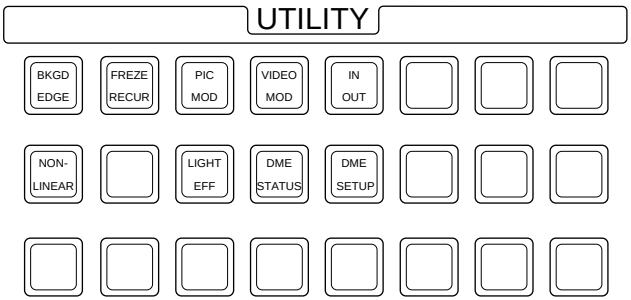
(Continued)

4 Press the one of the 24 UTILITY buttons to which you wish to assign the function.

The buttons which were lit continuously go off, and the assignment is complete.

Returning the top menu assignment to the default state (only when F2 is selected)

In the default state, the top menus shown below are assigned to the UTILITY buttons. To select this state, press F10 (DEFAULT LEARN).



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Assigning Registers to the SHOT BOX Buttons (SHOTBOX Menu)

You can assign switcher or DME registers storing such data as snapshots and keyframe effects to the 32 buttons in the BKDS-7033 Memory Recall Control Panel. The VTR control data set for the VTRs connected to the control panel can also be assigned to the buttons.
Pressing one of the 32 buttons then recalls the snapshot, or keyframe effect, or VTR control data stored in the register assigned to the button (shot box function).
The shot box function can also be realized by connecting the optional BKDS-8061 Memory Recall Remote Panel Unit to the switcher control panel, instead of using the optional BKDS-7033. Up to two BKDS-8061 units can be connected to the switcher control panel. When two BKDS-8061 units are connected to the switcher control panel, you can assign up to 40 registers to their buttons.
When the SHOT BOX function is assigned to UTILITY buttons, they function according to the settings made in this menu.

Option

Connecting the BKDS-8061 to the control panel requires the BKDS-7001 Control Port Expansion Board.

Note

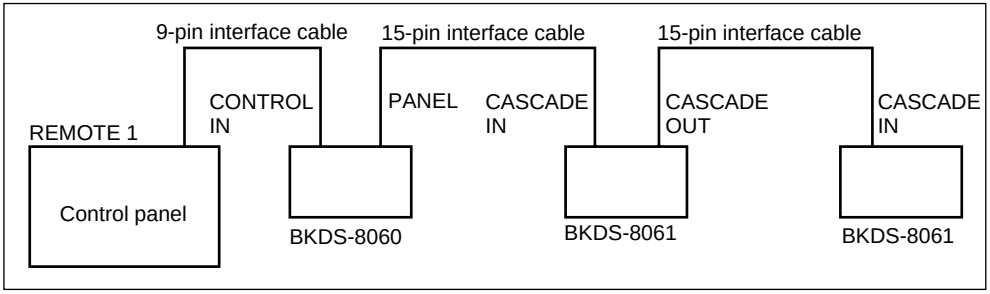
When both the BKDS-7033 and the BKDS-8061 are used, the registers assigned to the buttons of either of the two panels are also assigned to the correspondindg buttons on the other panel. You cannot assign different registers to the buttons same-numbered on the two panels.

Connecting BKDS-8061 Memory Recall Remote Panel Units to the switcher control panel

You can connect up to two BKDS-8061 units to the switcher control panel; with one unit there are 20 buttons, and with two units a maximum of 40 buttons.

Using the BKDS-8061 requires a BKDS-8060 Interface Unit.

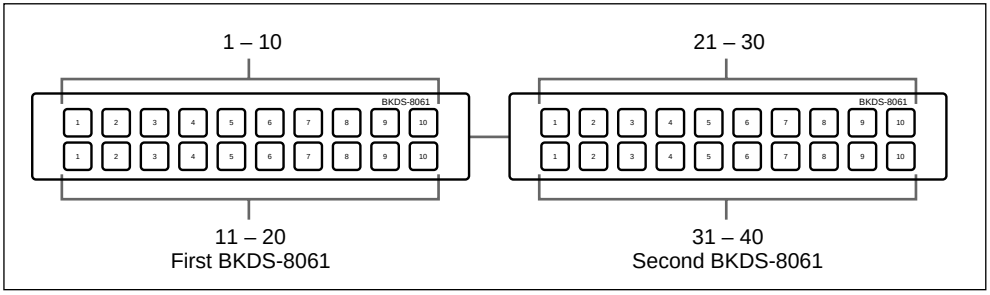
Connect these devices as shown in the following figure.



BKDS-8061 memory recall remote panel connections to control panel

Remote panel button numbers

The button numbers of the remote panels used for the shotbox function are fixed, as follows.



Assigning switcher registers to buttons

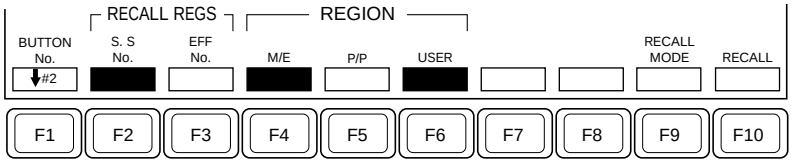
Use the following procedure.

1 In the OPERATION menu, press F10 (SHOTBOX).

The SHOTBOX menu appears.

2 If in the screen “SWITCHER” is not selected, press the cursor movement button (← →) to select it.

The menu appears as follows.



Function key indications in the SHOTBOX menu (with “SWITCHER” selected)

3 Press F1 (BUTTON No.), or turn control knob 2 to align the cursor with the number of the button to be assigned.

4
- To assign a snapshot register, press F2 (S.S No.), then enter the register number with the numeric keypad.
- To assign a keyframe effect register, press F3 (EFF No.), then enter the register number with the numeric keypad.

5 If in step **4** you selected a snapshot register, press F4 (M/E) to F6 (USER) to select the sub-registers used.

When a keyframe effect register is selected, the object of the selection is not the recall, but the execution after the recall.

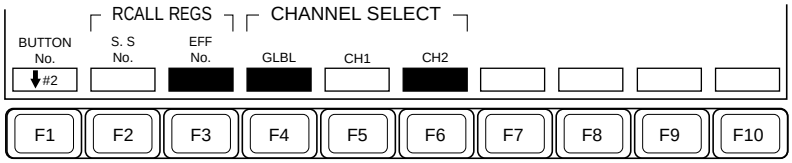
Repeat steps **3** to **5** as required, to assign the buttons.

Assigning DME registers to buttons

Use the following procedure.

1 If in the SHOTBOX menu “DME” is not selected, press the cursor movement button (⬅ ➡) to select it.

The menu appears as follows.



Function key indications in the SHOTBOX menu (with “DME” selected)

2 Press F1 (BUTTON No.), or turn control knob 2 to align the cursor with the number of the button to be assigned.

3
- To assign a snapshot register, press F2 (S.S No.), then enter the register number with the numeric keypad.
- To assign a keyframe effect register, press F3 (EFF No.), then enter the register number with the numeric keypad.

4 Press F4 (GLBL) to F6 (CH2) to select the channel used.

Repeat steps **2** to **4** as required, to assign the buttons.

Note

For the same button number, it is not possible to assign different snapshot register numbers on the switcher and DME. It is also not possible to assign different keyframe effect register numbers.

Setting the recall mode when recalling a keyframe register

With “SWITCHER” selected, press F9 (RECALL MODE) to make the selection.

RECALL: Carry out a recall only.

R & R: After the recall, carry out a rewind.

Carrying out a recall test

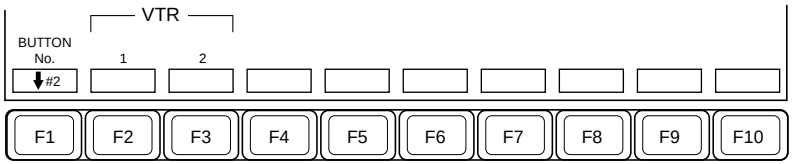
With “SWITCHER” selected, press F10 (RECALL).

Assigning VTR control data to buttons

Use the following procedure.

1 If in the SHOTBOX menu "VTR" is not selected, press the cursor movement button (⬅ ➡) to select it.

The menu appears as follows.



Function key indications in the SHOTBOX menu (with "VTR" selected)

2 Press F1 (BUTTON No.), or turn control knob 2 to align the cursor with the number of the button to be assigned.

3 To assign the register storing VTR1 or VTR2 control data, press F2 (VTR1) or F3 (VTR2), then enter the register number with the numeric keypad.

Repeat steps **2** and **3** as required, to assign the buttons.

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Chapter 14
DIAGNOSIS Menu Operations

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Displaying Error Messages 14-3

Overview

The DIAGNOSIS menu supports the function to display error messages.

Accessing the DIAGNOSIS menu

To access the DIAGNOSIS menu, in the menu control section, press the DIAG top menu button in the SYSTEM group.

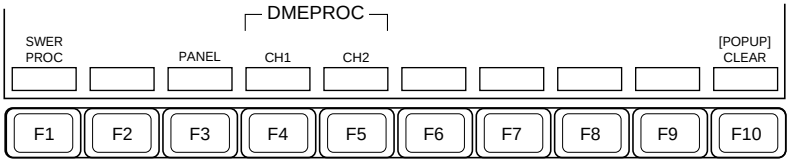
Displaying Error Messages

You can use the ERROR MESSAGE menu to display error messages for the switcher and DME connected to the control panel.

To display error messages, use the following procedure.

1 In the DIAGNOSIS menu, select item 5 (ERROR), then press F3 (ERROR MESSAGE).

The ERROR MESSAGE menu appears.



Function key indications in the ERROR MESSAGE menu

If any function key is flashing, it indicates an error has occurred on the corresponding equipment.

2 Press the flashing function key to display the error message.

To clear the error message if displayed even after correction of the error

Even after the error is corrected, the error message may remain displayed. To clear the error message in such a case, press F10 (CLEAR).
If the error is no longer present, the error message will disappear.

To temporarily clear an error message and turn off the alarm buzzer

When an error is detected causing the corresponding error message to appear and the alarm buzzer to sound, you can temporarily clear the error message and turn off the alarm buzzer by holding down the SHIFT button and pressing F10 (POPUP) in the ERROR MESSAGE menu.
In this case, resetting the control panel before correcting the error will cause the same error message to appear and the alarm buzzer to sound again.

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Appendixes

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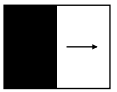
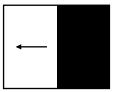
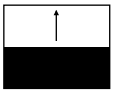
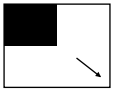
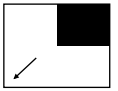
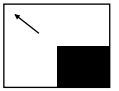
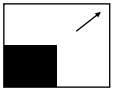
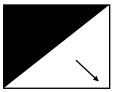
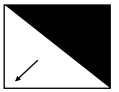
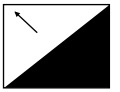
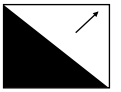
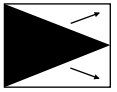
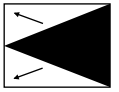
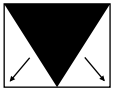
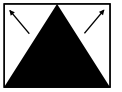
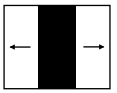
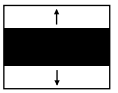
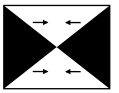
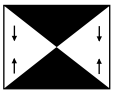
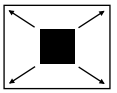
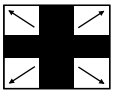
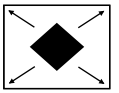
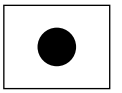
Wipe Patterns

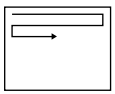
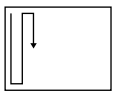
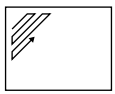
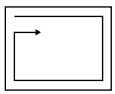
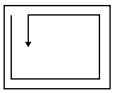
Standard Wipes

1		2		3		4	
5		6		7		8	
9		10		11		12	
13		14		15		16	
17		18		19		20	
21		22		23		24	

Enhanced Wipes

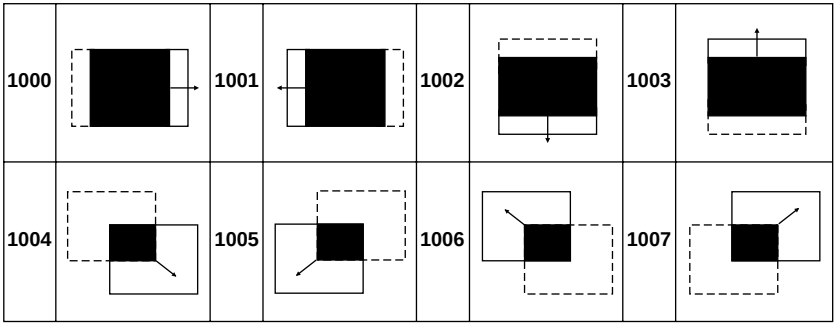
26		27	

Mosaic Wipes (including diamond dust wipe)

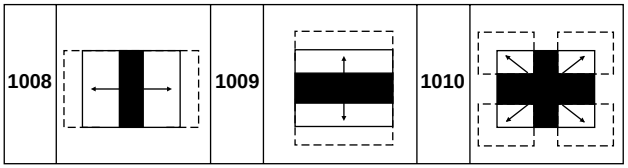
200		201		202		206	
210		270	RANDOM	271	RANDOM2	272	RANDOM3
274	DIAMOND DUST						

DME Wipe Patterns

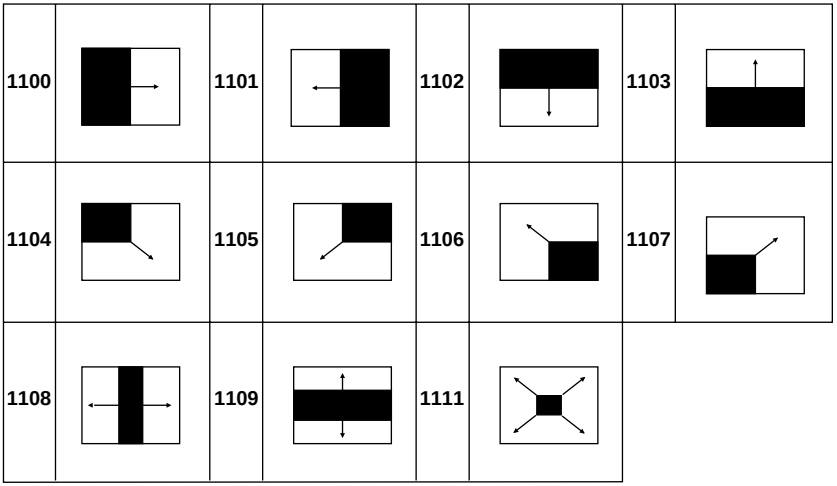
Slide



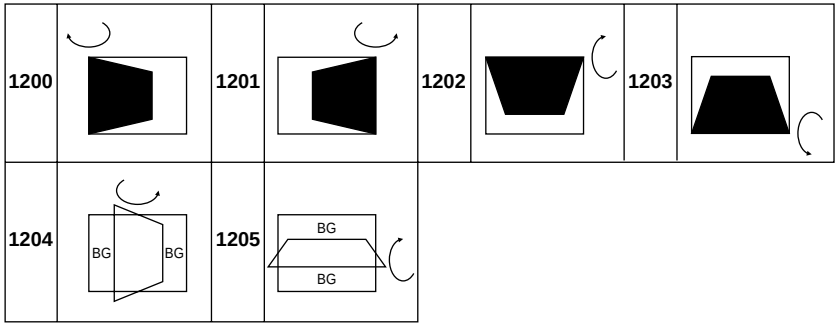
Split



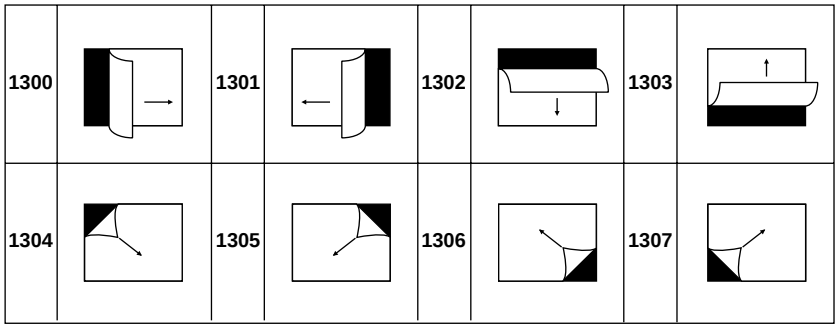
Squeeze



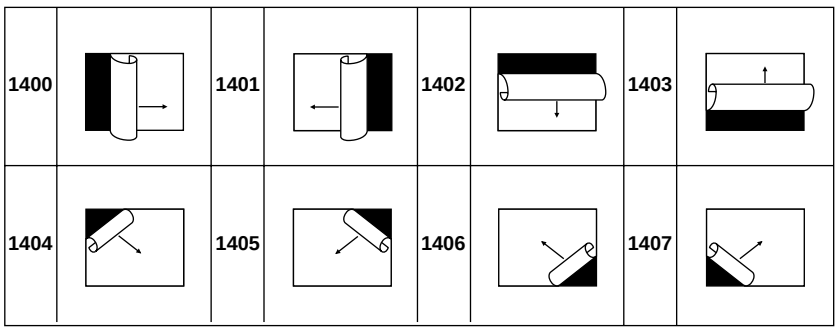
Door (BG: Background color)



Page turn



Page roll



User programmable DME wipes

1901	PROG 1	**1902**	PROG 2	**1903**	PROG 3	**1904**	PROG 4
1905	PROG 5	**1906**	PROG 6	**1907**	PROG 7	**1908**	PROG 8
1909	PROG 9	**1910**	PROG 10	**1911**	PROG 11	**1912**	PROG 12
1951	PROG 51	**1952**	PROG 52	**1953**	PROG 53	**1954**	PROG 54
1955	PROG 55	**1956**	PROG 56				
1961	PROG 61	**1962**	PROG 62	**1963**	PROG 63	**1964**	PROG 64
1965	PROG 65	**1966**	PROG 66				

Menu System

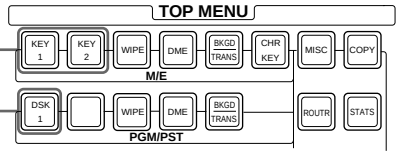
This Appendix shows the organization of each menu, and the top menu buttons in the menu control section used to recall each menu.

In addition to the top menu buttons, for some menus there are particular buttons which recall the menu when pressed twice in rapid succession.

For details of menus accessed by pressing a button twice, see page 3-4.

M/E KEY1, M/E KEY2 and DSK1 Menus

Top menu buttons:



Item	
1	TYPE
2	FILL/SOURCE
3	EDGE
4	MASK

KEY TYPE

F1	LUM
F2	LINEAR
F3	CLEAN
F4	CHROMA a)
F5	PATTERN
F8	KEY INVERT
F9	KEY PRIORTY

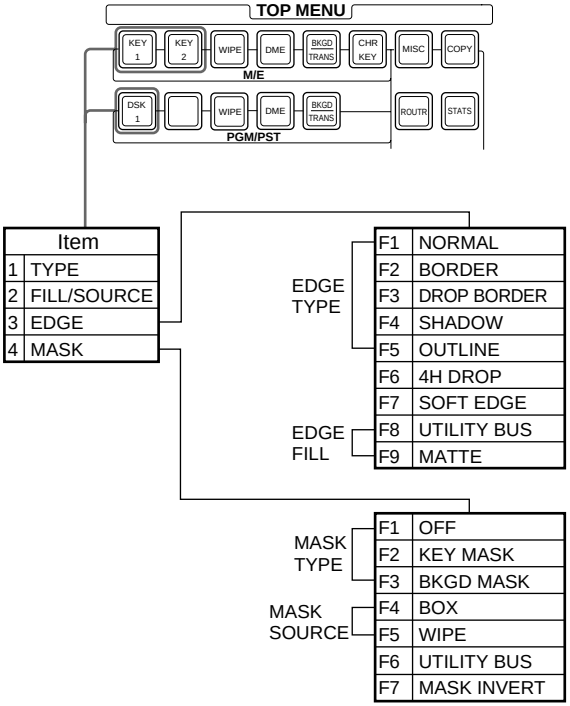
a) Not displayed for DSK1.

KEY FILL / KEY SOURCE / PROCESSED KEY

F1	KEY BUS
F2	MATTE
F4	KEY BUS
F5	AUTO SELECT
F6	SPLIT
F8	PROC KEY
F9	CLEAN KEY
F10	KEY ADJUST

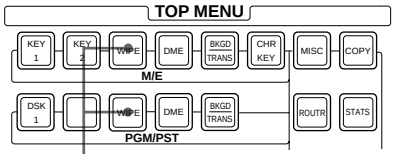
See the next page.

Top menu buttons:



M/E WIPE and PGM/PST WIPE Menus

Top menu buttons:



Item	
1	PATTERN
2	DIRECT/POS
3	EDGE
4	MAIN MODIFY
5	SUB MODIFY

DIRECTION

F1	NORMAL
F2	NORMAL/ REVERSE
F3	REVERSE

MAIN POSITIONER

F4	POS
F5	NORMAL
F6	AUTO CENTER

SUB POSITIONER

F7	POS
F8	NORMAL
F9	AUTO CENTER
F14	CENTER
F17	CENTER

F2 selected

PATTERN / PAGE

F1	MIX
F2	MAIN
F3	SUB
F5	PAGE1
F6	PAGE2
F10	ENTER

F1 selected

PATTERN / MAIN/SUB LINK

F1	MIX
F2	MAIN
F3	SUB
F5	OFF
F6	SEMI
F7	FULL

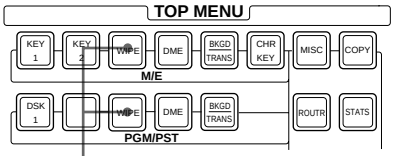
F3 selected

PATTERN / PAGE

F1	MIX
F2	MAIN
F3	SUB
F5	PAGE1
F6	PAGE2
F10	ENTER

See the next page.

Top menu buttons:



Item	
1	PATTERN
2	DIRECT/POS
3	EDGE
4	MAIN MODIFY
5	SUB MODIFY

EDGE TYPE / EDGE FILL

F1	OFF
F2	BORDER
F3	SOFT
F4	SOFT BORDER
F5	UTILITY BUS
F6	MATTE

ROTATION

F1	ASPECT
F2	MULTI
F3	OFF
F4	ANGLE
F5	SPEED
F6	MAG
F7	H MOD
F8	V MOD

ROTATION

F1	ASPECT
F2	MULTI
F3	OFF
F4	ANGLE
F5	SPEED
F6	MAG

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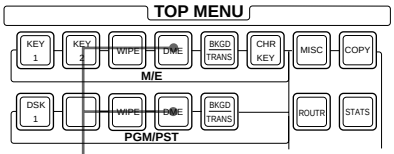
M/E DME WIPE and PGM/PST DME WIPE Menus

Top menu buttons:



Item	
1	PATTERN
2	DIRECT/POS
3	BORDER

F5	SL/SQ
F6	DOOR
F7	P-TURN
F8	P-ROLL
F9	PROG
F10	ENTER

DIRECTION

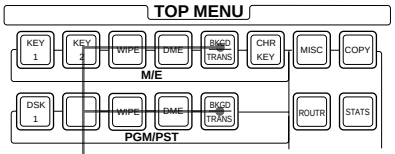
F1	NORMAL
F2	NORMAL/ REVERSE
F3	REVERSE
F5	POS
F15	CENTER

EDGE TYPE

F1	OFF
F2	BORDER
F3	SOFT
F4	SOFT BORDER

M/E BKGD/TRANS and PGM/PST BKGD/TRANS Menus

Top menu buttons:



Item	
1	COLOR BKGD
2	LIMIT/S-MIX

F1 selected

MATTE	F1	FLAT
	F2	PATTERN MIX

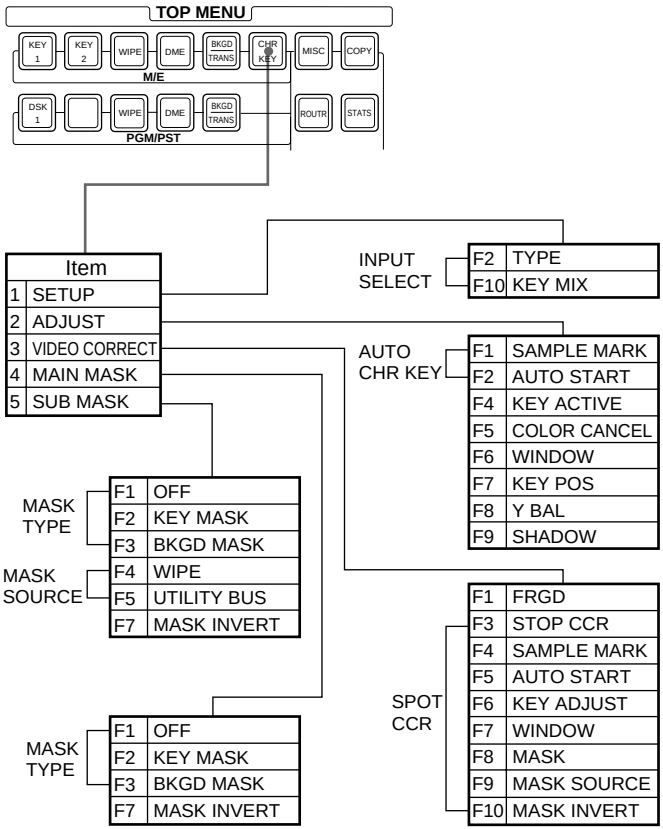
F2 selected

MATTE	F1	FLAT
	F2	PATTERN MIX
	F4	POS
	F5	ASPECT
	F6	MULTI
ROTATION	F7	ANGLE
	F8	SPEED
ADJUST	F9	MATTE1
	F10	MATTE2
	F14	COLOR INVERT

F1	TRANS LIMIT

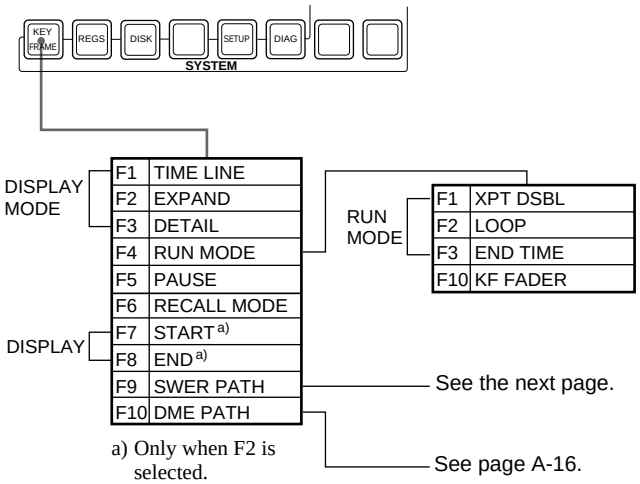
M/E CHROMA KEY Menu

Top menu buttons:



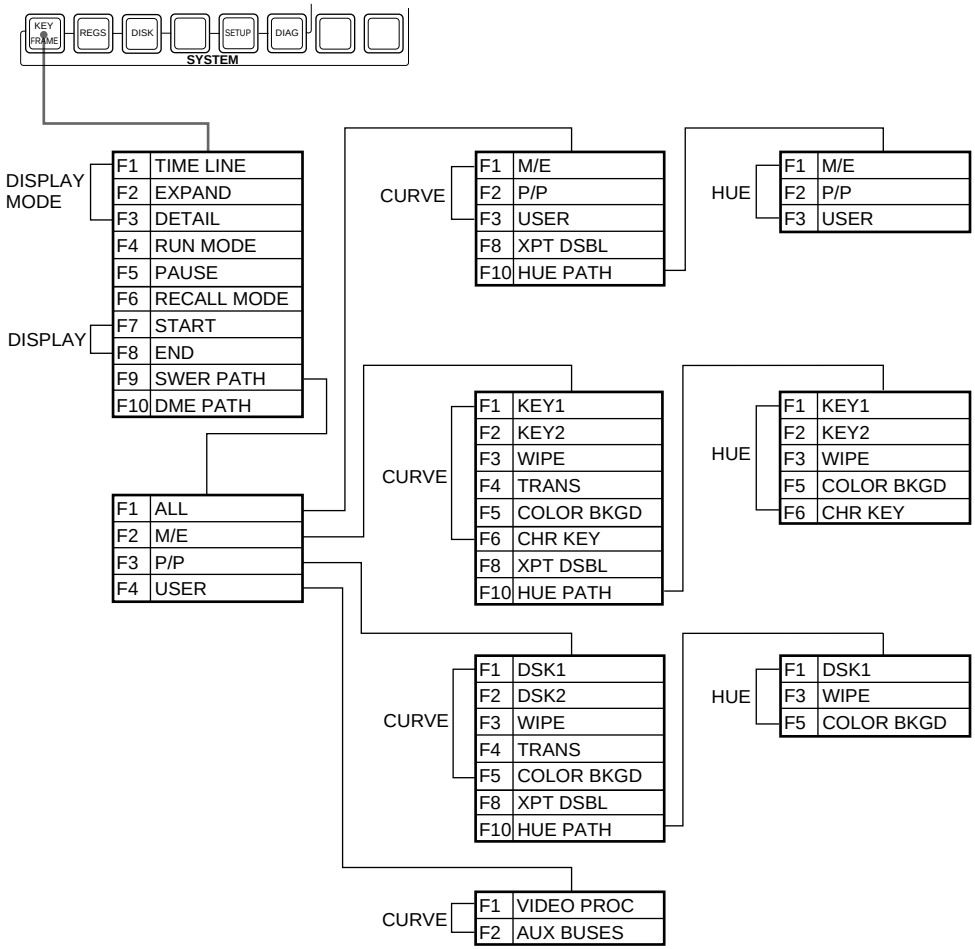
KEYFRAME Menu

Top menu buttons:

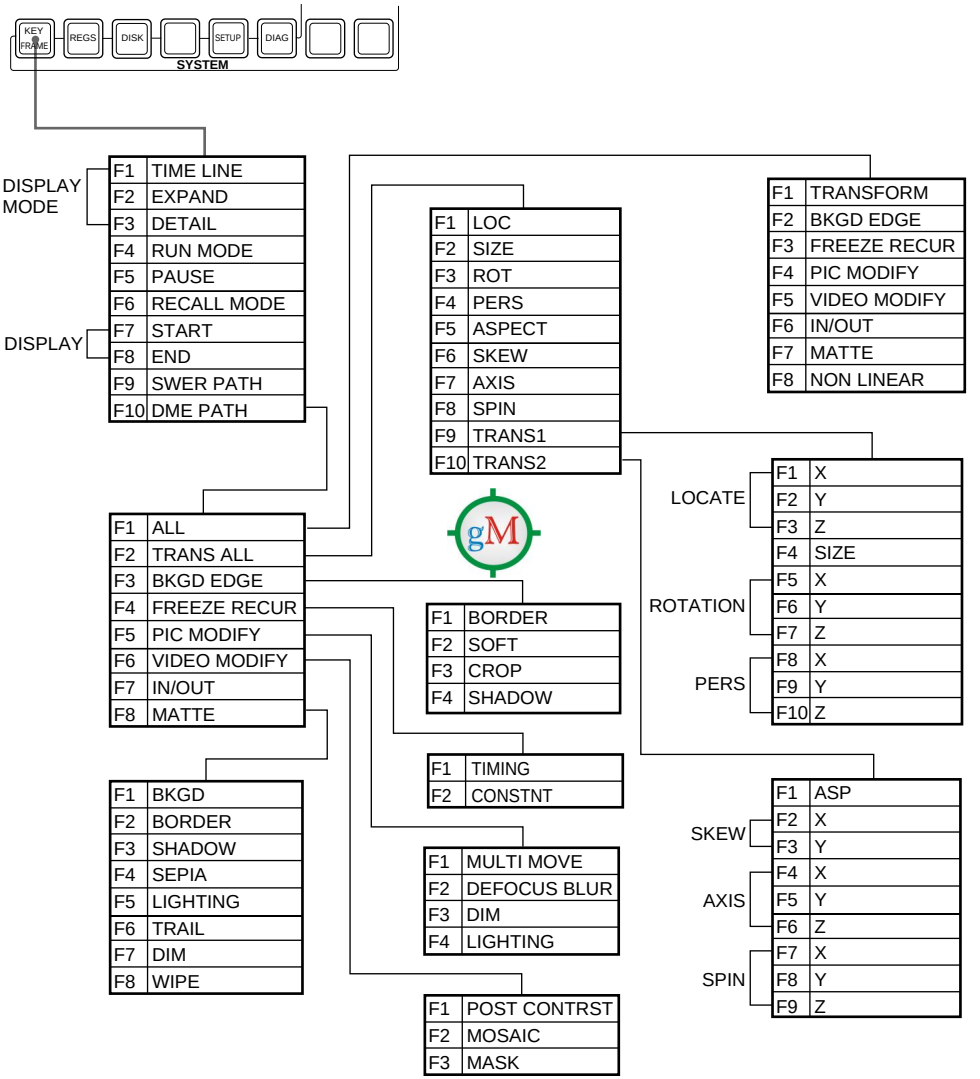


a) Only when F2 is selected.

Top menu buttons:

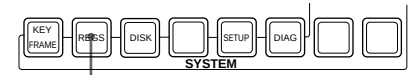


Top menu buttons:



REGISTER Menu

Top menu buttons:



Item	
1	EFFECT
2	SNAPSHOT
3	ATTRIB EDIT
4	CONFIG USER
5	CH COPY
11	VTR

EDIT / SELECT

F1	MOVE
F2	SWAP
F3	COPY
F4	DELETE
F5	NAME
F6	MERGE
F7	ALL
F8	BLOCK
F9	ONE
F10	EXEC
F11	LOCK
F12	UNLOCK

F9	YES
F10	NO

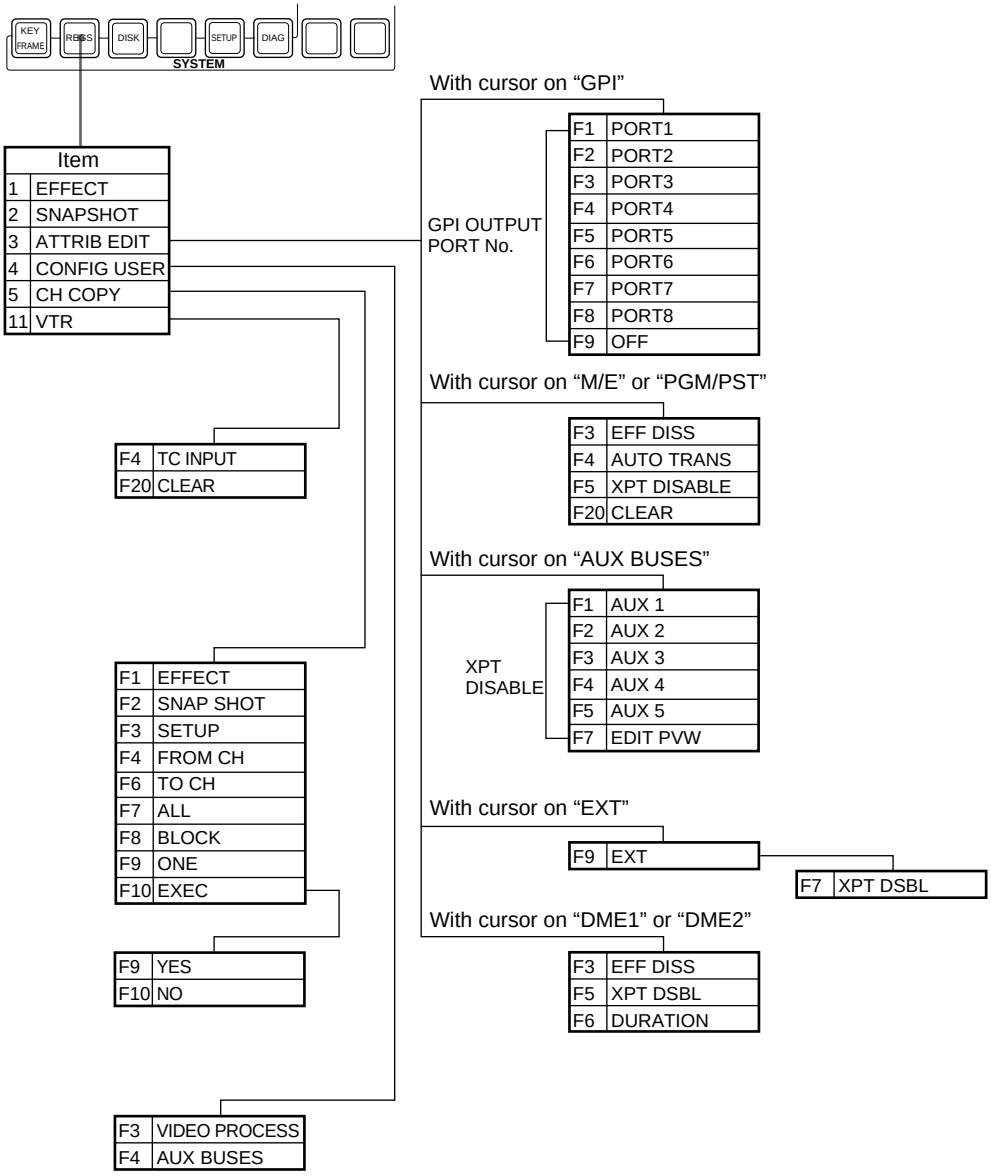
EDIT / SELECT

F1	MOVE
F2	SWAP
F3	COPY
F4	DELETE
F5	NAME
F7	ALL
F8	BLOCK
F9	ONE
F10	EXEC
F11	LOCK
F12	UNLOCK

F9	YES
F10	NO

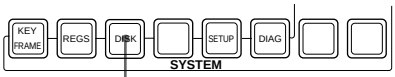
See the next page.

Top menu buttons:



DISK Menu

Top menu buttons:



Item	
1	EFFECT
2	SNAPSHOT
3	SETUP
4	MISC
5	UTILITY
11	VTR

FUNCTION / FILE SELECT

F1	SAVE
F2	LOAD
F3	COPY
F4	DELETE
F5	RENAME
F7	ALL
F8	BLOCK
F9	ONE
F10	EXEC
F11	FORMAT
F12	LABEL

F9	YES
F10	NO

FUNCTION / FILE SELECT

F1	SAVE
F2	LOAD
F3	COPY
F4	DELETE
F5	RENAME
F7	SETUP
F8	KEY MEMORY
F9	CRK MEMORY
F10	EXEC
F11	FORMAT
F12	LABEL

F9	YES
F10	NO

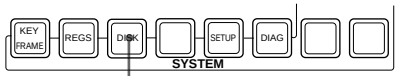
FUNCTION

F1	SAVE
F2	LOAD
F3	COPY
F4	DELETE
F5	RENAME
F9	KEY
F10	EXEC
F11	FORMAT
F12	LABEL

F9	YES
F10	NO

See the next page.

Top menu buttons:



Item	
1	EFFECT
2	SNAPSHOT
3	SETUP
4	MISC
5	UTILITY
11	VTR

FUNCTION

F1	ALL SAVE
F2	ALL LOAD
F3	OPERAT SETUP
F4	EFFECT
F6	SNAPSHOT
F7	SETUP
F8	MISC
F9	VTR
F10	EXEC

F9	YES
F10	NO

F1	SAVE
F2	LOAD
F3	COPY
F4	DELETE
F5	RENAME
F10	EXEC
F11	FORMAT
F12	LABEL

F9	YES
F10	NO

F1	SAVE
F2	LOAD
F3	COPY
F4	DELETE
F5	RENAME
F7	VTR 1
F8	VTR 2
F10	EXEC
F11	FORMAT
F12	LABEL

F9	YES
F10	NO

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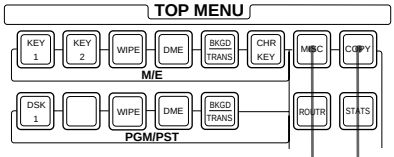
MISC Menu and COPY Menu

Top menu buttons:



Item	
1	ENABLE
3	VIDEO PROCESS
4	CCR

See the next page.

F1	GPI
F2	DME1
F3	DME2
F4	EDIT A [a]
F5	EDIT B [a]
F6	PANEL 2
F10	TABLET

a) Display depends on setup.

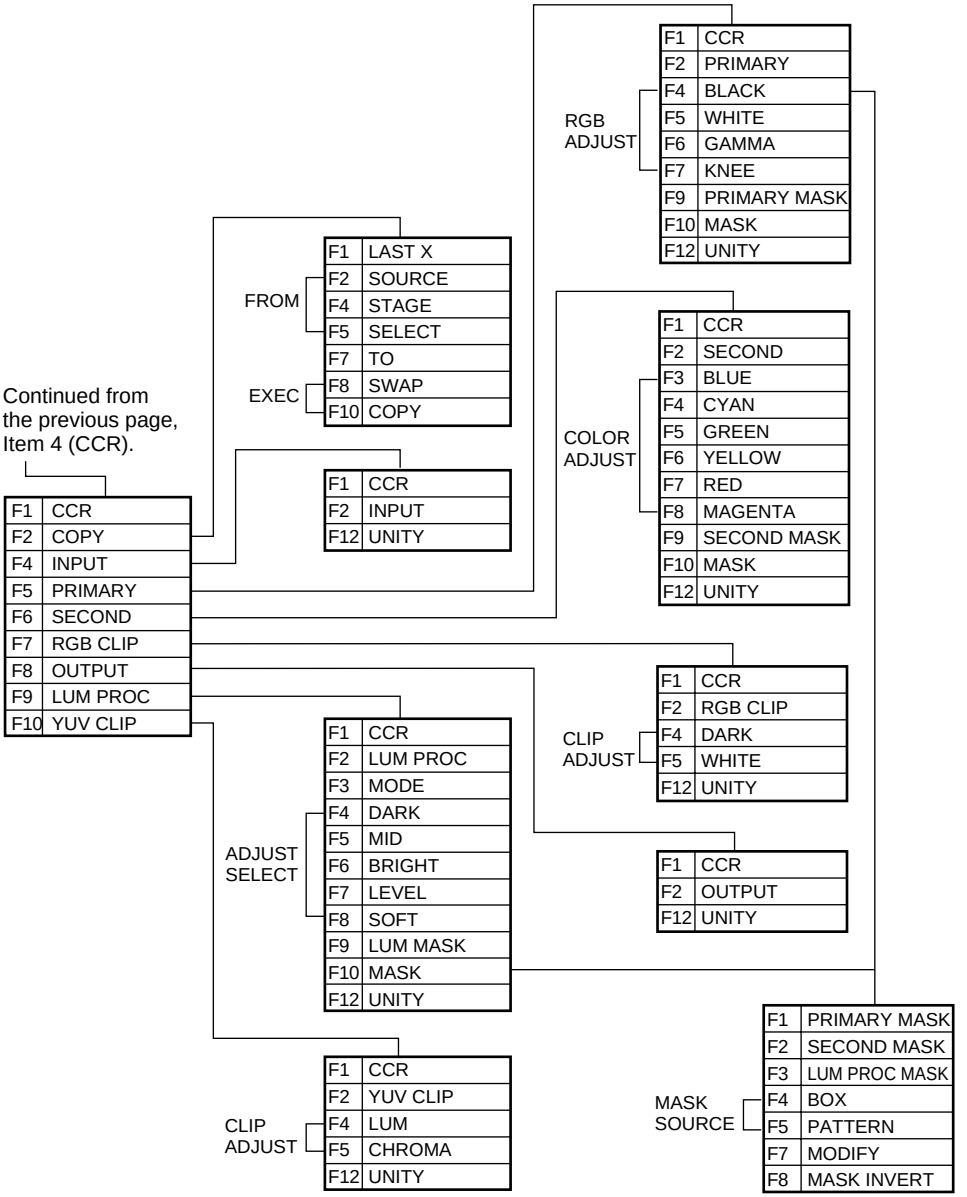
F1	VIDEO PROCESS
F4	COPY [b]
F5	SWAP [b]
F8	UNITY [b]
F10	STATUS
F20	CLEAR

b) Display may or may not appear, depending on the operation.

Item	
1	M/E
2	KEYER
3	WIPE
4	MATTE

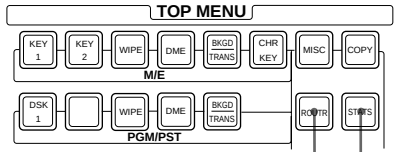
F1	LAST X
F3	FROM
F5	XPT DSBL [c]
F7	TO
F8	SWAP
F10	COPY

c) For WIPE and MATTE, F5 is not displayed.


Continued from the previous page, Item 4 (CCR).
F1 CCR
F2 COPY
F4 INPUT
F5 PRIMARY
F6 SECOND
F7 RGB CLIP
F8 OUTPUT
F9 LUM PROC
F10 YUV CLIP
FROM
EXEC
F1 LAST X
F2 SOURCE
F4 STAGE
F5 SELECT
F7 TO
F8 SWAP
F10 COPY
F1 CCR
F2 INPUT
F12 UNITY
RGB ADJUST
F1 CCR
F2 PRIMARY
F4 BLACK
F5 WHITE
F6 GAMMA
F7 KNEE
F9 PRIMARY MASK
F10 MASK
F12 UNITY
COLOR ADJUST
F1 CCR
F2 SECOND
F3 BLUE
F4 CYAN
F5 GREEN
F6 YELLOW
F7 RED
F8 MAGENTA
F9 SECOND MASK
F10 MASK
F12 UNITY
CLIP ADJUST
F1 CCR
F2 RGB CLIP
F4 DARK
F5 WHITE
F12 UNITY
F1 CCR
F2 OUTPUT
F12 UNITY
ADJUST SELECT
F1 CCR
F2 LUM PROC
F3 MODE
F4 DARK
F5 MID
F6 BRIGHT
F7 LEVEL
F8 SOFT
F9 LUM MASK
F10 MASK
F12 UNITY
CLIP ADJUST
F1 CCR
F2 YUV CLIP
F4 LUM
F5 CHROMA
F12 UNITY
MASK SOURCE
F1 PRIMARY MASK
F2 SECOND MASK
F3 LUM PROC MASK
F4 BOX
F5 PATTERN
F7 MODIFY
F8 MASK INVERT

ROUTER Menu and STATUS Menu

Top menu buttons:



Item	
1	ROUTER CONTROL

F2	DEST SELECT
F6	SELECT
F8	SOURCE SELECT

Item	
5	ALL

F8	AUX SELECT
F10	TRANS RATE

F1	AUX1
F2	AUX2
F3	AUX3
F4	AUX4
F5	AUX5
F7	EDIT PVW
F10	SELECT

F1 selected

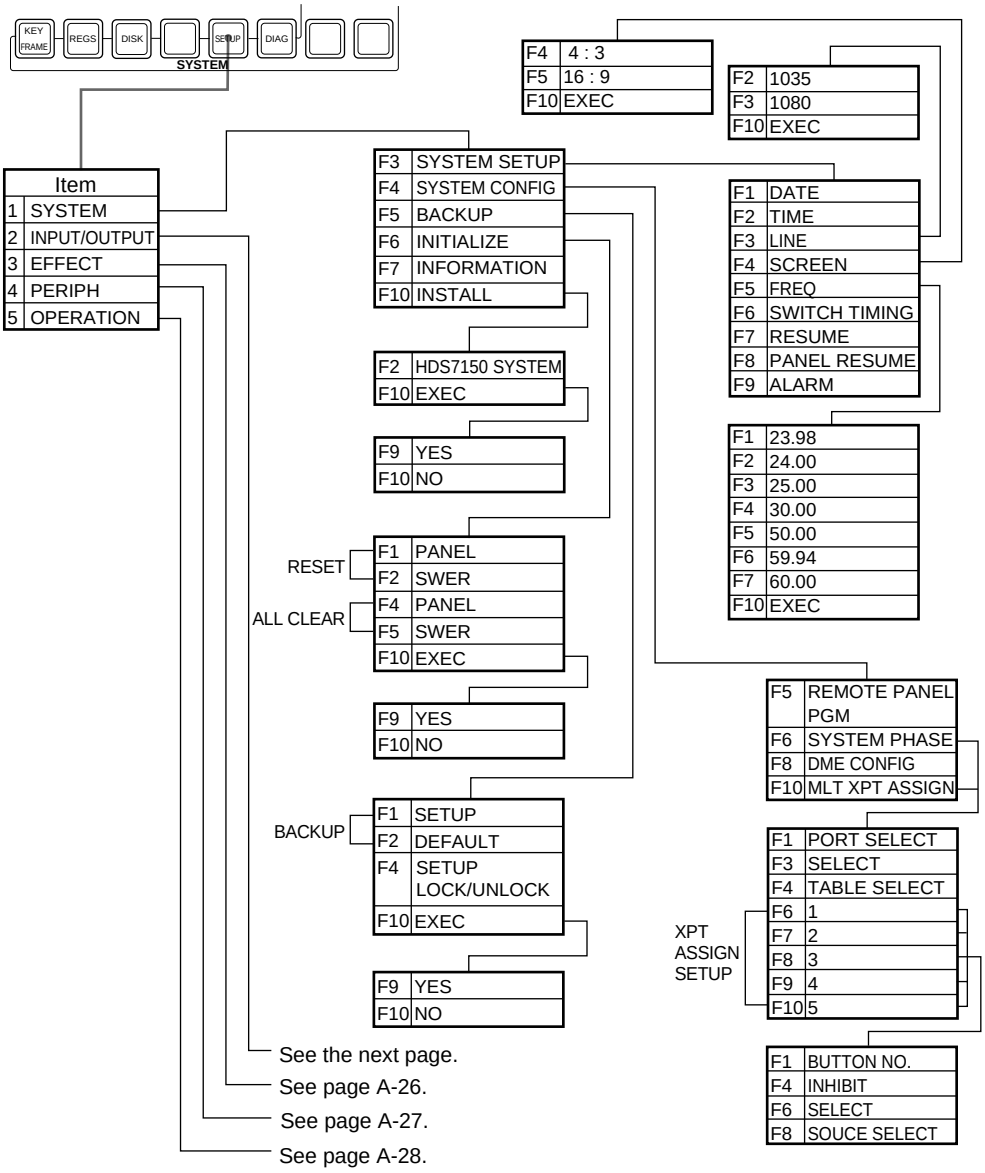
F1	M/E
F2	P/P
F5	AUTO TRANS
F6	KEY1 MIX
F7	KEY2 MIX

F2 selected

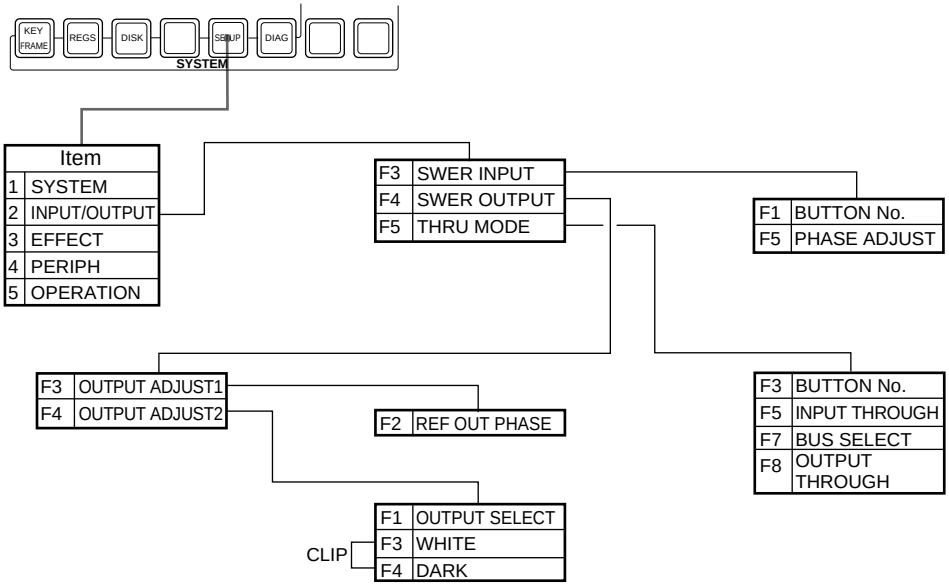
F1	M/E
F2	P/P
F5	AUTO TRANS
F6	DSK1 MIX
F8	FTB

SETUP Menu

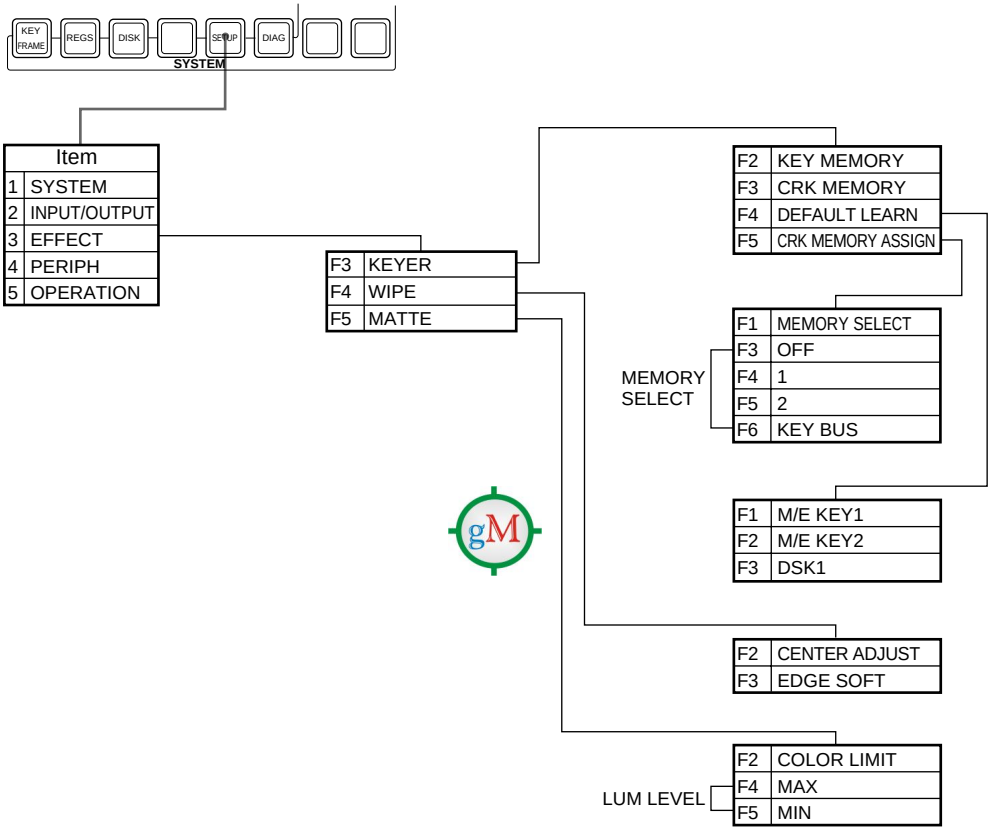
Top menu buttons:



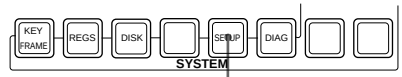
Top menu buttons:



Top menu buttons:



Top menu buttons:



Item	
1	SYSTEM
2	INPUT/OUTPUT
3	EFFECT
4	PERIPH
5	OPERATION

F3	PORT ASSIGN
F4	AUX CTRL
F5	DME IF a)
F6	ROUTER IF
F7	GPI INPUT
F8	GPI OUTPUT

a) Not displayed with DME CONFIG set to INT.

F2	PORT SELECT
F5	SELECT
F7	PERIPH SELECT

F1	BUS SELECT
F2	PANEL1
F3	DME1
F4	DME2
F5	EDIT A
F6	EDIT B
F7	PANEL2
F8	KF/SS

F2	PORT SELECT
F3	TRIGER TYPE
F4	PULSE WIDTH
F6	SELECT
F8	ACTION SELECT
F10	TEST FIRE

RE-ENTRY

F1	DME SELECT
F2	OFF
F3	BUTTON No.
F4	ON AIR TALLY
F6	SELECT
F8	BUS SELECT
F10	DME ASSIGN

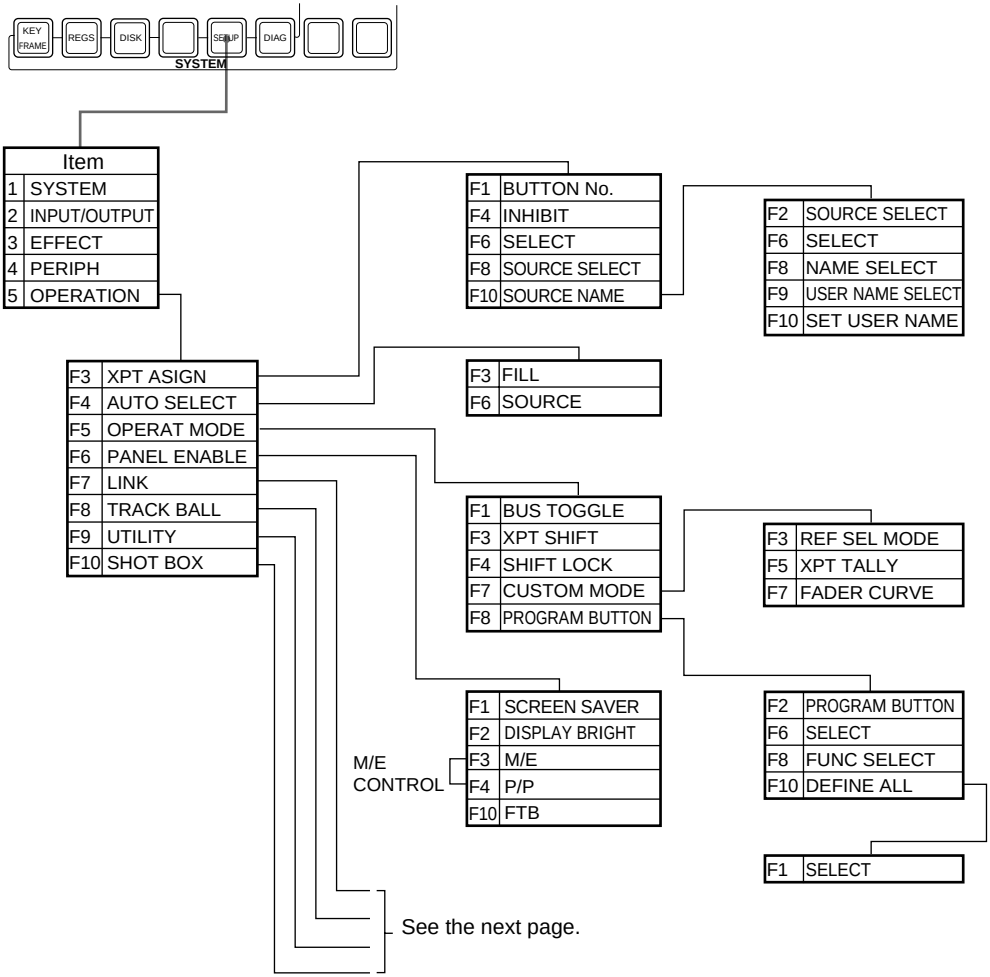
F2	M/E SELECT
F4	SELECT
F6	DME SELECT

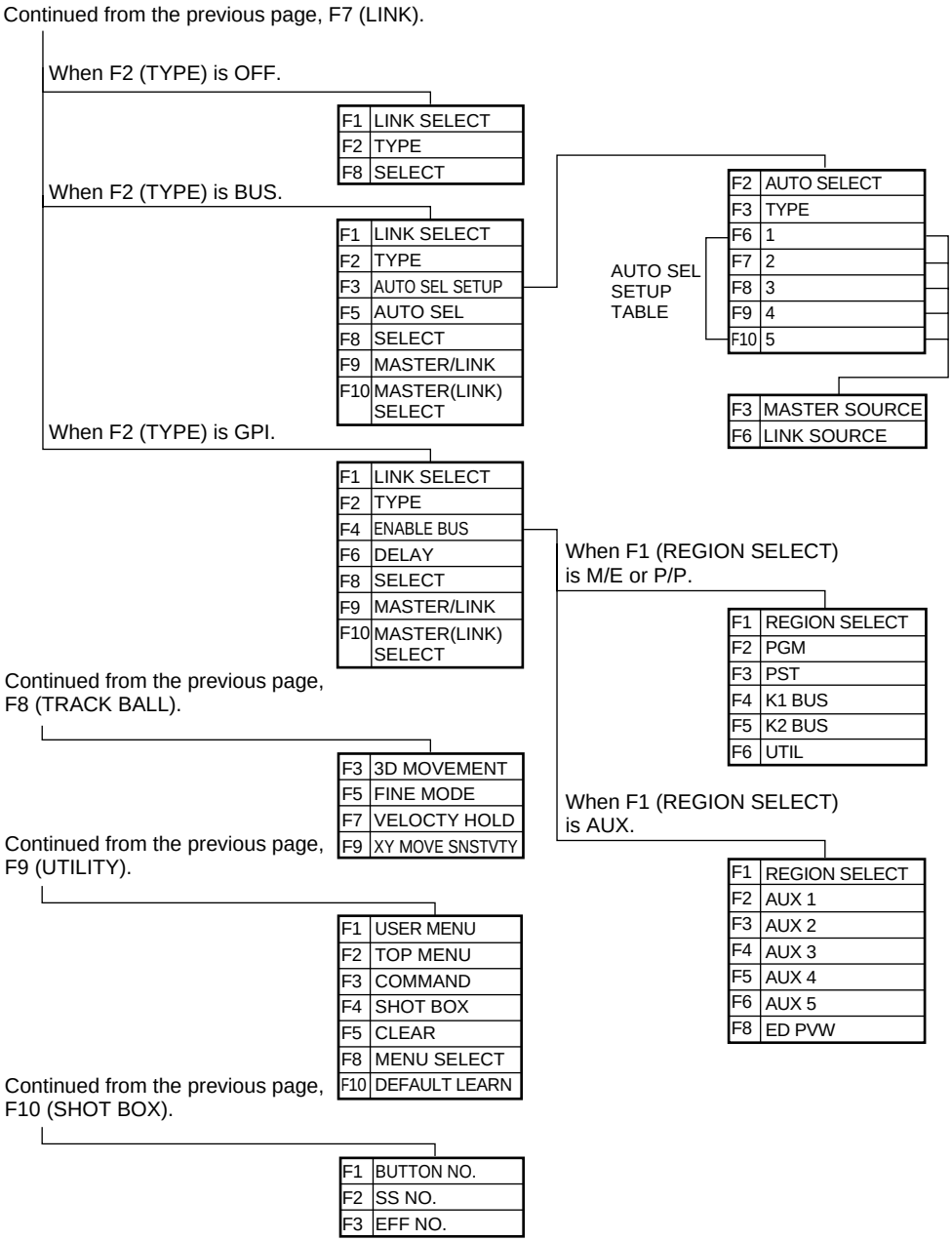
F1	SWER INPUT
F4	NO CONNECT
F7	SELECT
F9	DEST SELECT
F10	SS DISABLE

REGION

F2	PORT SELECT
F3	TRIGER TYPE
F4	SELECT
F5	ALL
F7	SELECT
F9	ACTION SELECT

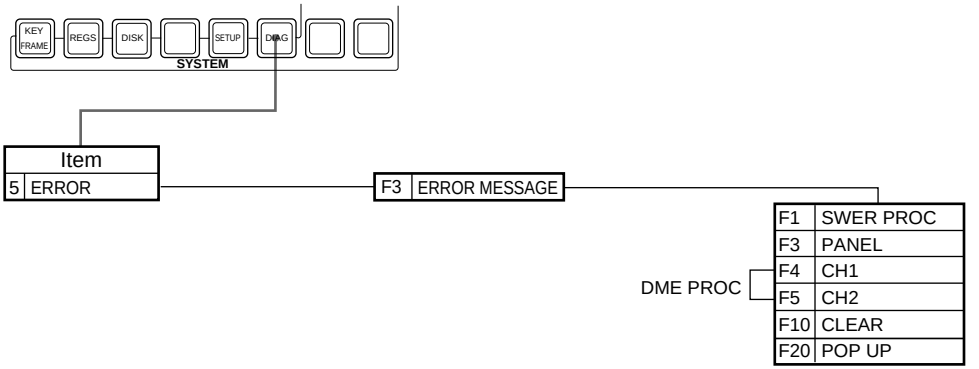
Top menu buttons:




Continued from the previous page, F7 (LINK).
When F2 (TYPE) is OFF.
F1 LINK SELECT
F2 TYPE
F8 SELECT
When F2 (TYPE) is BUS.
F1 LINK SELECT
F2 TYPE
F3 AUTO SEL SETUP
F5 AUTO SEL
F8 SELECT
F9 MASTER/LINK
F10 MASTER(LINK) SELECT
AUTO SEL SETUP TABLE
F2 AUTO SELECT
F3 TYPE
F6 1
F7 2
F8 3
F9 4
F10 5
F3 MASTER SOURCE
F6 LINK SOURCE
When F2 (TYPE) is GPI.
F1 LINK SELECT
F2 TYPE
F4 ENABLE BUS
F6 DELAY
F8 SELECT
F9 MASTER/LINK
F10 MASTER(LINK) SELECT
When F1 (REGION SELECT) is M/E or P/P.
F1 REGION SELECT
F2 PGM
F3 PST
F4 K1 BUS
F5 K2 BUS
F6 UTIL
When F1 (REGION SELECT) is AUX.
F1 REGION SELECT
F2 AUX 1
F3 AUX 2
F4 AUX 3
F5 AUX 4
F6 AUX 5
F8 ED PVW
Continued from the previous page, F8 (TRACK BALL).
F3 3D MOVEMENT
F5 FINE MODE
F7 VELOCTY HOLD
F9 XY MOVE SNSTVTY
Continued from the previous page, F9 (UTILITY).
F1 USER MENU
F2 TOP MENU
F3 COMMAND
F4 SHOT BOX
F5 CLEAR
F8 MENU SELECT
F10 DEFAULT LEARN
Continued from the previous page, F10 (SHOT BOX).
F1 BUTTON NO.
F2 SS NO.
F3 EFF NO.

DIAGNOSIS Menu

Top menu buttons:



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Operation Software

HZS-7040

User's Guide

HD Digital Video Switcher

HDS-7150

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Digital HDVS

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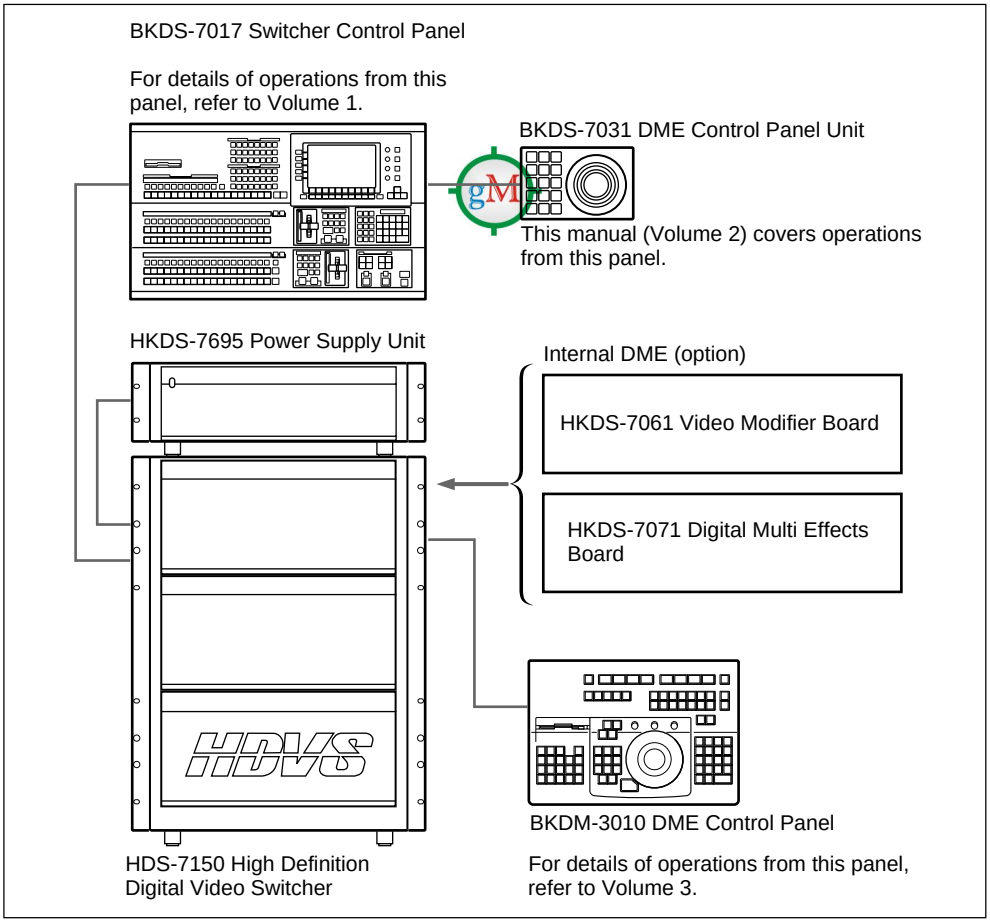
HDS-7150 System Introduction

This manual is Volume 2 of the User's Guide for the HZS-7040 Operation Software for the HDS-7150 HD Digital Video Switcher.
The User's Guide consists of three volumes, and this volume covers control of the HDS-7150 internal DME (option) from the BKDS-7031 DME Control Panel Unit.

System Configuration

The BKDS-7031 is used connected to the BKDS-7017 Switcher Control Panel. The following figure shows an example configuration of an HDS-7150 system.


BKDS-7017 Switcher Control Panel
For details of operations from this panel, refer to Volume 1.
BKDS-7031 DME Control Panel Unit
This manual (Volume 2) covers operations from this panel.
HKDS-7695 Power Supply Unit
Internal DME (option)
HKDS-7061 Video Modifier Board
HKDS-7071 Digital Multi Effects Board
BKDM-3010 DME Control Panel
For details of operations from this panel, refer to Volume 3.
HDS-7150 High Definition Digital Video Switcher

Terms used in this manual

In this manual the following terms (other than product names) are used to refer to this software product and related devices.

Term used in this manual	Corresponding device and function
“Internal DME” or “DME”	DME functions provided by installing HKDS-7061 and HKDS-7071 in the switcher
“External DME”	HDME-7000 High Definition Digital Multi Effects connected to the switcher
“Control panel” or “DME control panel”	BKDS-7031 DME Control Panel Unit (The other DME control panel which can be connected to the switcher is always referred to by its model name, the BKDM-3010.)
“Switcher”	HDS-7150 High Definition Digital Video Switcher

Operation Software

The HZS-7040 Operation Software provides for control of an HDS-7150 High Definition Digital Video Switcher and internal DME function.

Disks and manuals included in the HZS-7040

The following disks and User’s Guide volumes are included in the product.

Label	Contents
SYSTEM DISK 1	Switcher processor software (including software for the HKDS-7061)
SYSTEM DISK 2	Switcher control panel software
SYSTEM DISK 3	Internal DME software (for the HKDS-7071)
SYSTEM DISK 4	Software for the BKDM-3010 DME Control Panel
User’s Guide Volume 1	Description of switcher operating procedures
User’s Guide Volume 2 (this manual)	Description of operating procedures for the internal DME controlled from the BKDS-7031 DME Control Panel Unit
User's Guide Volume 3	Description of operating procedures for the internal DME controlled from the BKDM-3010 DME Control Panel

Installing software, and User's Guide volumes used

Use the disks and User's Guide volumes included in the HZS-7040 according to the following table of objectives.

Objective	Control panel	Disks used	Software installation destination	User's Guide volume for reference
Operating the switcher	BKDS-7017	DISK 1 and DISK 2	BKDS-7017 Switcher Control Panel	Volume 1
Operating the internal DME	BKDS-7031	DISK 3	BKDS-7017 Switcher Control Panel	Volume 2
	BKDM-3010	DISK 3 and DISK 4	BKDM-3010 DME Control Panel	Volume 3

For details of the method of installing DISK 3 in the BKDS-7017, see page 9-15 in this manual. For other installation procedures refer to the corresponding manual.

Note

With the HDS-7150, you can use either an internal DME (HKDS-7061 and HKDS-7071) or an external DME (HDME-7000 or similar connected to the EXT DME 1/2 connectors). However, it is not possible to use both together.
To use an internal DME, in the SYSTEM CONFIGURATION menu *(see Volume 1)*, set DME CONFIG to "INT."
For the operations when an external DME is selected ("EXT"), refer to the HZDM-7020 User's Guide.

Features

Installing the HKDS-7061 and HKDS-7071 in the HDS-7150 switcher allows you to use the internal DME function. This provides the following features.

Three-dimensional image transformations

The system offers a range of three-dimensional processes both with respect to the source coordinates (that is, the input video space) and the target coordinates (that is, the video space of the output, including shifting, rotation, and zoom functions). Smooth and accurate manipulation is provided by the x-y track ball and Z-ring.

Special effects functions

The following are some of the special effects you can apply to a video image:

- Background coloring and edge effects
- Freeze and strobe effects, using recursive memory functions, and afterimage effects
- Overall image effects ("multi move," and defocusing, for example)
- Video and key signal transformations (negative image, mosaic effects, etc.)
- Various nonlinear effects (waves, page turns, and so forth)
- Lighting effects

Keyframe effects

With the optional BKDS-7030 Keyframe Control Panel installed in the switcher control panel, you can save DME image states and special effects as keyframes. By building a series of keyframes for appropriate points on the time axis, you can build and save an effect, for which the system automatically provides the interpolation between each successive pair of keyframes.

Editor interfaces

You can use a BVE-2000, BVE-9100, or other editing control unit, connected to either the Sony 9-pin remote interface or the GPI interface, for execution of keyframe and other effects.

Switcher Control Panel Connections

The 9-pin cable connection between the BKDS-7017 Switcher Control Panel and the HDS-7150 varies, depending on whether or not it is used with the BKDM-3010 DME Control Panel.

When the BKDM-3010 DME Control Panel is used

Connect the DME connector of the BKDS-7017 to the SWITCHER PANEL (DME) connector of the HDS-7150.
Connect the BKDM-3010 DME Control Panel to the 25-pin DME PANEL connector of the HDS-7150.
Carry out the installation of the software (SYSTEM DISK 3 and 4) from the BKDM-3010.

When the BKDM-3010 DME Control Panel is not used

Connect the DME connector of the BKDS-7017 to the DME PANEL connector of the HDS-7150.
In this case, the SWITCHER PANEL (DME) connector of the HDS-7150 is not used.
Carry out the installation of the software (SYSTEM DISK 3) from the BKDS-7017.

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Channel Assignments

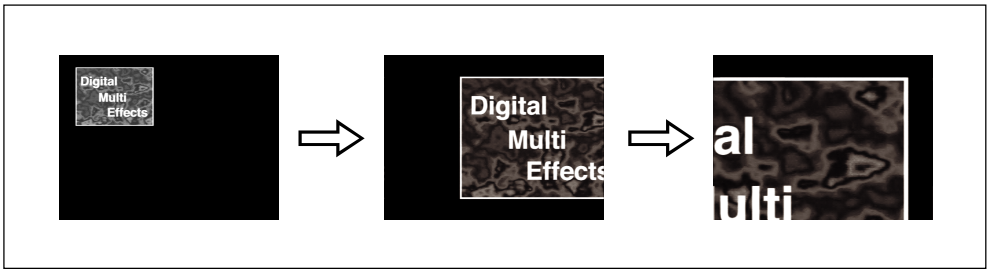
For the HDS-7150 internal DME function, the available DME channels are automatically assigned as follows, depending on the configuration of the HKDS-7061 Video Modifier Board and HKDS-7071 Digital Multi Effects Board installation.

Channel	Option Configuration	
	HKDS-7061 and HKDS-7071	**HKDS-7061 only**
DME channel 1	Can be used. This channel provides three-dimensional transformations, background and edge effects, picture modifiers, video modifiers, nonlinear effects, and so on.	Cannot be used.
DME channel 2	Can be used. This channel provides input freeze, picture modifiers, video modifiers, and other effects.	
Global channel	Can be used for the channel 1.	Cannot be used.

Examples of DME Effects

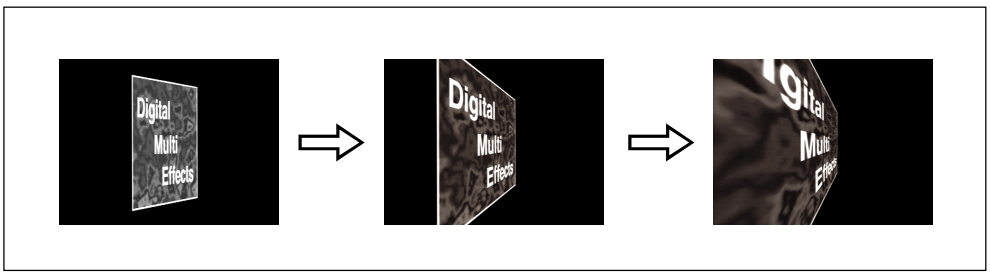
This section illustrates some of the effects which the internal DME can produce. It also refers to the page numbers (in parentheses) on which the corresponding procedures are described.
The following screen examples illustrate the case where the aspect ratio is set to the 4:3 mode. When the 16:9 mode is selected, the screen aspect ratio is 16:9.

Three-Dimensional Transformations



Displacement in 3-D space (page 3-8)

Rotation in 3-D space (page 3-10)



Perspective deformation (page 3-21)

Background and Edge Effects

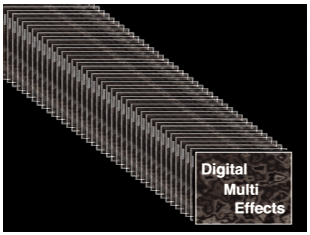
BORDER (page 4-9)

CROP (page 4-11)

DROP SHADOW (page 4-13)

Freeze and Afterimage Effects

MOTION DECAY (page 4-18)

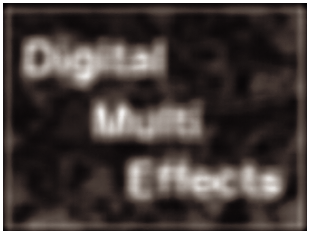


TRAIL (page 4-20)

WIND (page 4-21)

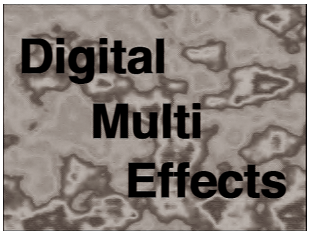
Overall Image Effects

MULTI MOVE (page 4-27)



DEFOCUS (page 4-28)

Video Signal Effects



NEGA (page 4-33)

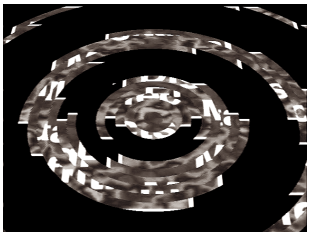
MOSAIC (page 4-40)

Nonlinear Effects

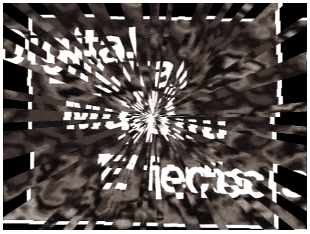
WAVE (page 4-45)

FLAG (page 4-52)

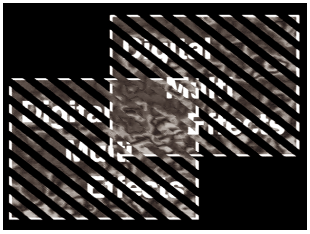
RIPPLE (page 4-53)



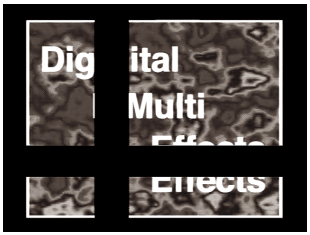
RINGS (page 4-55)



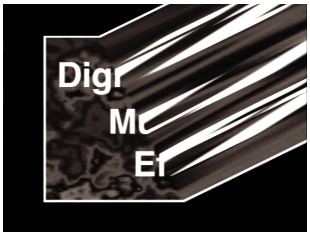
BROKEN GLASS (page 4-61)



FLYING BARS (page 4-62)



SPLIT (page 4-63)



CHARACTER TRAIL (page 4-67)

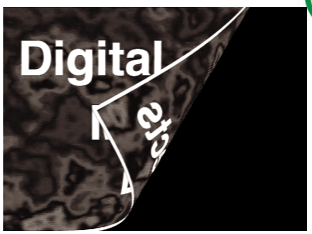
Examples of DME Effects

MIRROR (page 4-72)

LENS (page 4-73)

CIRCLE (page 4-75)

PANORAMA (page 4-76)



PAGE TURN (page 4-80)

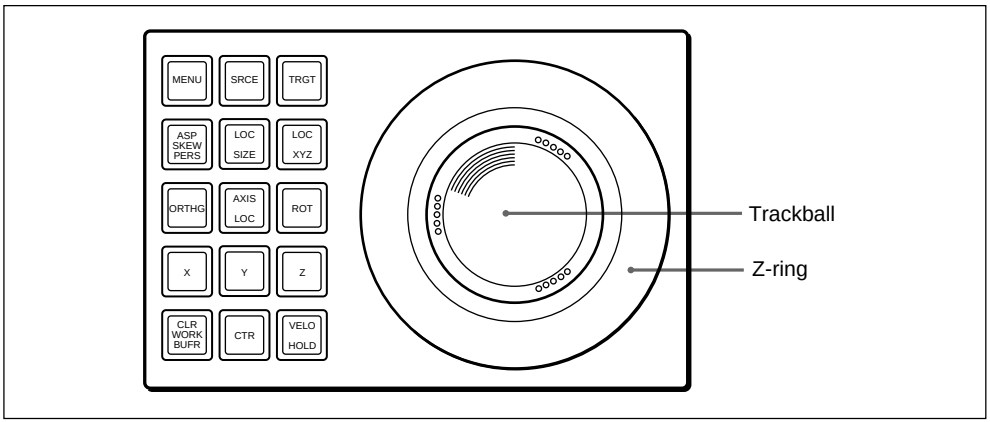
CYLINDER (page 4-83)

SPHERE (page 4-85)

Chapter 2
Location and Function of Parts

BKDS-7031 DME Control Panel Unit 2-2

BKDS-7031 DME Control Panel Unit



BKDS-7031 DME control panel unit

The controls of the DME control panel provide the following functions.

Trackball: When the SRCE button or TRGT button is lit, this controls the x- and y-axes of a three-dimensional transformation.
When the MENU button is lit, this adjusts parameter settings in a menu screen. The x-axis is allocated to knob 1 and the y-axis to knob 2.[1)]

Z-ring: When the SRCE button or TRGT button is lit, turning the Z-ring controls the z-axis of a three-dimensional transformation.
When the MENU button is lit, this adjusts the setting of knob 3 in a menu screen.[1)]

By holding down the MENU, SRCE or TRGT button and manipulating the trackball and Z-ring, you can control the image movement more finely.

You can set the degree of fineness from the switcher SETUP menu. For details, refer to the User's Guide Volume 1.

(The rest of this section describes the buttons from the upper left corner.)

MENU button: Pressing this button, turning it on, assigns the trackball and Z-ring to menu operations, so that they can be used to adjust parameter settings.[1)]
Knob 1 is assigned to X, knob 2 to Y, and knob 3 to Z.
Changing the menu ends this assignment, but it is possible to keep the trackball and Z-ring assigned to the menu operations by the following method.

1) This applies only to certain menus, such as the wipe positioner.

Assigning X, Y and Z parameters permanently
With the trackball and Z-ring assigned to menu operations, press the MENU button twice in rapid succession. The MENU button lights green. Even if you now change menus, it remains possible to use the trackball and Z-ring for adjusting the X, Y, and Z parameters.

SRCE (source) button: Allocates the trackball and Z-ring to transformation operation in the source coordinate frame, that is, the coordinates based on the video image itself.

TRGT (target) button: Allocates the trackball and Z-ring to transformation operation in the target coordinate frame, that is, the coordinates based on the output videospace on the monitor.

ASP/SKEW/PERS (aspect/skew/ perspective) button: When this button and the SRCE button are lit, the trackball controls the skew of the image, and the Z-ring the aspect ratio. When the SRCE button is lit, by holding down the SHIFT button in the keyframe control panel and pressing this button, lighting it green, the X, Y, and RATE parameters are displayed in the three-dimensional parameter section of the screen. You can then use the trackball to control the width and height of the image, and the Z-ring to control the aspect ratio. When this button and the TRGT button are lit, the trackball and Z-ring control the perspective of the image.

LOC (locate) SIZE button: When this button is lit, the Z-ring changes the size of the image, and the trackball moves the image in the x- and y-directions.

LOC (locate) XYZ button: When this button is lit, the trackball moves the image in the x- and y-directions and the Z-ring moves the image in the z-direction.

ORTHG (orthogonal) button: When this button is lit, the image moves only in the one of the x- and y-directions in which the trackball is moved more. In other words, this button can be used perform movement in the x- or y-direction only.
When this button is off, the movement of the image directly reflects the movement of the trackball.

AXIS LOC (locate) button: When this button is lit, the axis of rotation of the image is moved, in the x- and y-directions by the trackball, and in the x-direction by the Z-ring.

ROT (rotation) button: When this button is lit, the trackball rotates the image about the x- and y-axes, and the Z-ring about the z-axis.
By holding down the SHIFT button in the keyframe control panel and pressing this button, lighting it green, three-dimensional parameter indications in the menu screen change to SRCE SPIN or TRGT SPIN indications, and you can carry out "SPIN" operations *(see page 3-22)*.

X, Y, and Z buttons: Use these buttons to restrict the axes which are affected by movement of the trackball and Z-ring.
Of these three buttons, only the last pressed one lights green, and the numeric keypad can be used to input coordinate data for the axis corresponding to the lit button.

CLR WORK BUFR (clear working buffer) button: Pressing this button once clears only the three-dimensional transformation parameters held in the working keyframe buffer. Pressing it immediately a second time clears the remainder of the information held in the working keyframe buffer, and returns to the initial state. In this state, you can use make new setup *(see page 9-6)* settings.
The working keyrame buffer is an area of memory which holds the instantaneous state of the effect. While the effect is positioned on a keyframe, this corresponds to the contents of the keyframe, and while the effect is between keyframes, to a result of interpolation.

CTR (center) button: Pressing this button changes the current data values for the trackball or Z-ring positions to closest system-specified values (i.e. provides a detent function). Immediately pressing this button a second time reverts to the system default values.

VELO (velocity) HOLD button: If you hold down this button, then move the trackball or Z-ring, the movement continues at a constant velocity even when you release the trackball or Z-ring as long as the button is down.

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Chapter 3
Three-Dimensional Transformations

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Transformation Basics

This section describes the basic procedures for carrying out three-dimensional transformations and the concepts of the coordinate spaces used.

When both the HKDS-7071 and HKDS-7061 are installed, you can carry out three- dimensional transformations on the DME 1 channel.
When only the HKDS-7061 is installed, three- dimensional transformations are not available.

Option configuration	**HKDS-7061 and HKDS-7071**		**HKDS-7061 only**
Channel	DME 1	DME 2	DME 2
Three-dimensional transformations	Available	Not available	Not available

Basic Procedure

Three-dimensional transformations are carried out principally using the control panel. Page numbers for more detailed explanations are given in parentheses.

1 Select the channel to which the transformation is to apply in the numeric keypad section.

2 Press one of the following buttons in the DME control panel, turning it on, to select the coordinate frame for the transformation. *(See next page.)*
- Source coordinate frame: SRCE button
- Target coordinate frame: TRGT button

This assigns the trackball and Z-ring to transformation manipulation in the selected coordinate frame.

3 Press one of the following buttons, turning it on, according to the transformation you wish to carry out.
- To move the image: LOC XYZ button *(page 3-8)*
- To rotate the image: ROT button *(page 3-10)*
- To move the rotation axes: AXIS LOC button *(page 3-14)*
- To magnify or shrink the image: LOC SIZE button *(page 3-17)*
- To change the aspect ratio or perspective: ASP/SKEW/PERS button *(page 3-19)*

4 If necessary, press any of the following buttons to restrict the scope of the transformation.
- To restrict the transformation to particular axes: X, Y and Z buttons
- To restrict the trackball movement to orthogonal directions (i.e. along the x- or y-axis only): ORTHG button

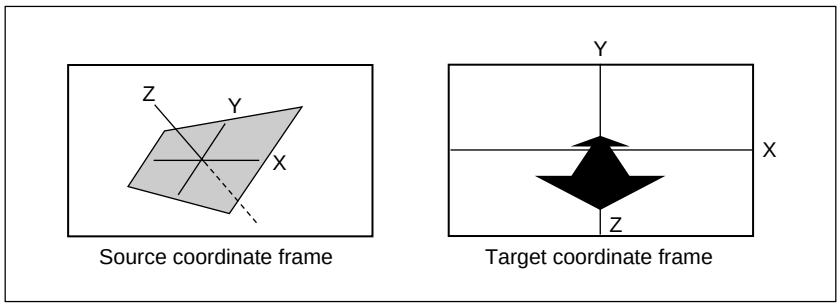
5 Operate the trackball or Z-ring to make the transformation, as follows.
- To make an arbitrary two-dimensional movement, use the trackball.
- To move along the x-axis only, move the trackball to left or right.
- To move along the y-axis only, move the trackball up or down.
- To move along the z-axis, turn the Z-ring.
- To continue a transformation at a constant speed, hold down the VELO HOLD button.

It is also possible to make a transformation without using the trackball or Z-ring, by entering x, y and z values from the numeric keypad. *(See page 3-5.)*

Source Coordinate Frame and Target Coordinate Frame

All three-dimensional manipulations of a video image take place in either the source coordinate frame or the target coordinate frame.

- The source coordinate frame is with respect to the original input video image. That is, as the video image is rotated, for example, the coordinates rotate with respect to the output video space.
- The target coordinate frame is with respect to the output video space. These coordinates are thus fixed independently of manipulation of the video image.



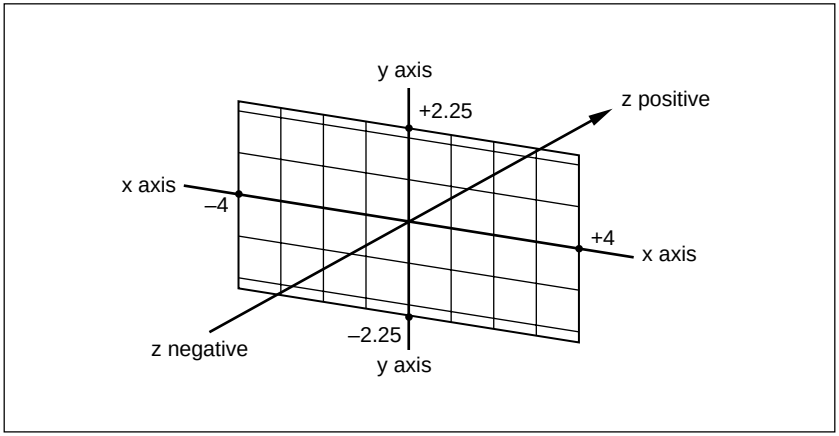
Source coordinate frame and target coordinate frame

Three-Dimensional Coordinates

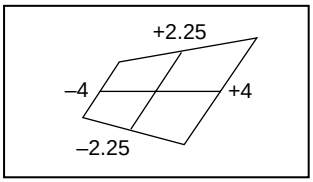
The figure below illustrates the x-, y- and z-coordinate values for each of the coordinate frames.

- In the source coordinate frame, the origin is at the center of the image, and the x- and y-coordinates range from –4 to +4 and –2.25 to +2.25 respectively over the area of the image. For a 4:3 aspect ratio image, however, these ranges are ±4 and ±3 respectively.
- In the target coordinate frame, the origin is at the center of the output video space, and the x- and y-coordinates range from –4 to +4 and –2.25 to +2.25 respectively over the area of the image. For a 4:3 aspect ratio image, however, these ranges are ±4 and ±3 respectively.

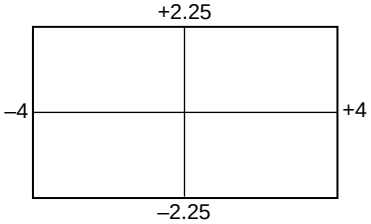
The limits for the x-, y- and z- coordinates are from –999 to +999.



X-, y- and z- coordinate values



Source coordinate frame



Target coordinate frame

Changing three-dimensional coordinate values with the numeric keypad

The three-dimensional coordinates for the reference channel are constantly displayed in the menu used for DME operations. *(See page 4-4.)*
You can carry out a transformation by changing these values with the numeric keypad, without using the trackball or Z-ring.
Use the following procedure to set coordinate values.

1 Press one of the X, Y or Z buttons, turning it on.

The pressed button lights green.

2 Enter the coordinate value for the selected axis from the numeric keypad.

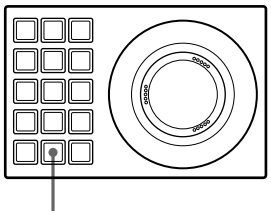
You can enter a value with up to four decimal places. It is also possible to enter a difference from the current value.

3 If you entered the new value press the ENTER button, and if you entered a difference press the TRIM button.

This changes the coordinate value, and the output video changes accordingly.

Detent positions and resetting

The three-dimensional axes have detent positions specified at regular intervals along them.
Pressing the CTR button sets a coordinate value to the closest detent.
Immediately pressing the CTR button once more returns the three-dimensional parameter to the default value.



Detent positions

The interval between successive detents depends on the transformation involved, as shown in the following table.

Function	Detent interval
Movement	1.0
Rotation	0.125 (45°)
Movement of rotation axes	1.0
Size change	0.25
Aspect ratio change	0.1
Perspective change	0.01

Resetting of parameter values set in the source coordinate frame

After setting up a transformation in the source coordinate frame, if you switch to the target coordinate frame the coordinate values in the source coordinate frame are converted to values in the target coordinate frame. When you switch back to the source coordinate frame, the original source coordinate frame values are reset to zeros.

Specializing the Effect of the Trackball and Z-Ring

You can restrict the axes controlled by the trackball and Z-ring, or constrain the way in which the image moves.

Restricting a transformation to particular axes

To restrict the effect of the trackball and Z-ring on the transformation to particular axes, press one or two of the X, Y and Z buttons, turning them on.

Restricting a transformation to orthogonal directions

To restrict the trackball movement to orthogonal directions (i.e. along the x- or y-axis only), press the ORTHG button, turning it on.
The image moves only in that of the x- and y-axes in which the trackball movement is greater.

Making fine adjustments

To make the trackball and Z-ring adjustments finer than normal, hold down the MENU, SRCE or TRGT button in the DME control panel while carrying out the operation.
You can vary the fineness from the switcher SETUP menu.

For details, refer to the User's Guide Volume 1.

Carrying out a transformation at a constant speed

To continue a transformation at a constant speed, hold down the VELO HOLD button while turning the trackball or Z-ring.
The speed is detected, and then as long as you hold this button down the image continues to change at the same speed.
In the switcher SETUP menu you can set the speed stages.

For details, refer to the User's Guide Volume 1.

Other trackball and Z-ring settings

In addition to the above functions, you can change the relationship between the trackball and Z-ring movement and the movement of the image.

For details, refer to the User's Guide Volume 1.

Moving the Image

This section describes how to move the image in either the source or target coordinate frame.

Moving in the Source Coordinate Frame

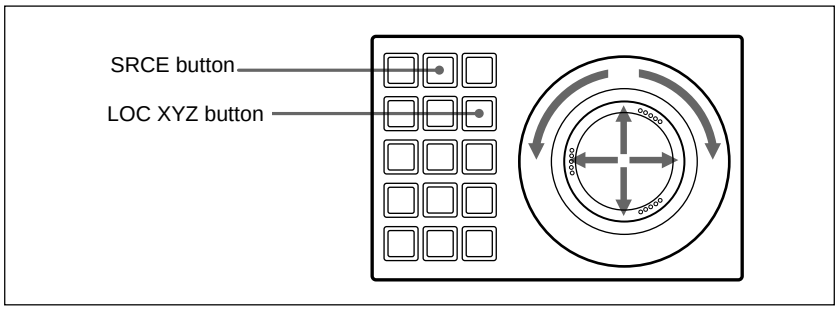
Procedure

To move the image in the source coordinate frame, use the following procedure in the DME control panel.

1 Press the SRCE button, turning it on.

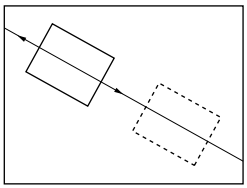
2 Press the LOC XYZ button, turning it on.
If you wish to move the image in the x- and y-directions only, pressing the LOC SIZE button has the same effect.

3 Move the trackball to move the image in the x- and y-directions.
Turn the Z-ring to move the image in the z-direction.

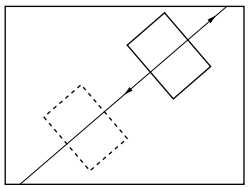


DME control panel operation

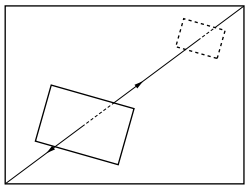
Video change



Movement along the x-axis



Movement along the y-axis



Movement along the z-axis

Moving in the Target Coordinate Frame

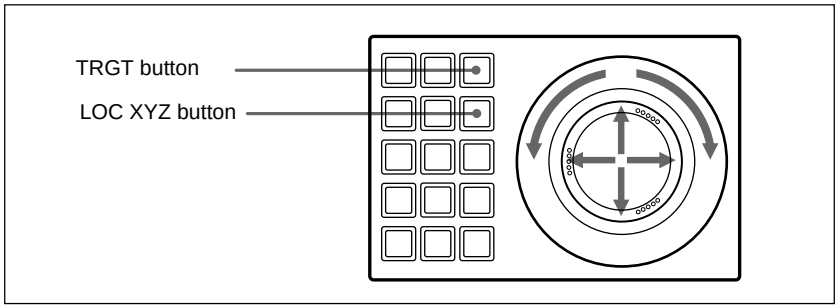
Procedure

To move the image in the target coordinate frame, use the following procedure in the DME control panel.

1 Press the TRGT button, turning it on.

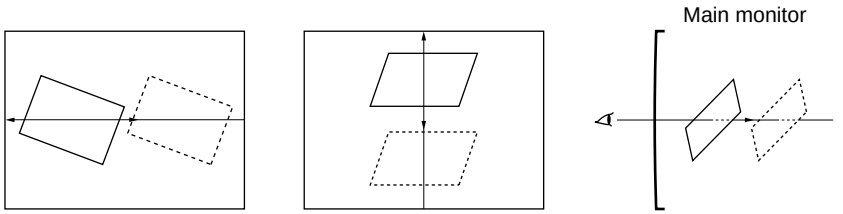
2 Press the LOC XYZ button, turning it on.
If you wish to move the image in the x- and y-directions only, pressing the LOC SIZE button has the same effect.

3 Move the trackball to move the image in the x- and y-directions.
Turn the Z-ring to move the image in the z-direction.



DME control panel operation

Video change



Movement along the x-axis　Movement along the y-axis　Movement along the z-axis

Rotating the Image

This section describes how to rotate the image in either the source or target coordinate frame.
When creating an effect in which the image rotates continuously, in order to specify the number of rotations use the SPIN function *(see page 3-22)*.

Rotating in the Source Coordinate Frame

Procedure

To rotate the image in the source coordinate frame, use the following procedure in the DME control panel.

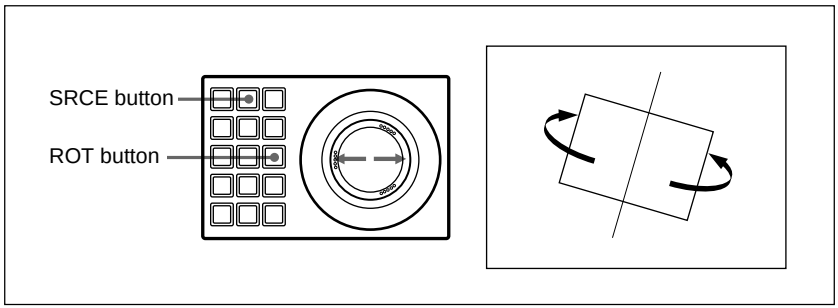
1 Press the SRCE button, turning it on.

2 Press the ROT button, turning it on.

3 Move the trackball to rotate the image about the x- and y-axes.

Turn the Z-ring to rotate the image about the z-axis.

Rotation about the y-axis



DME control panel operation and video change

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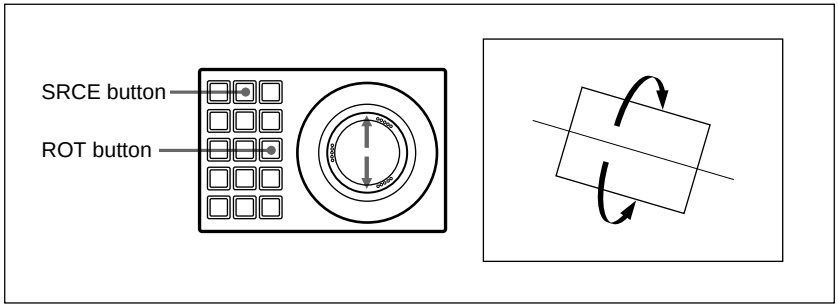
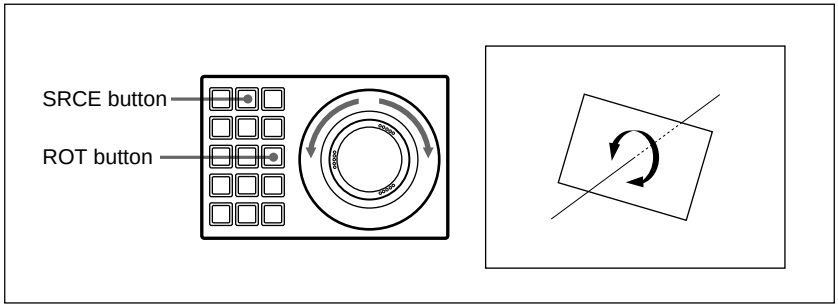
Rotation about the x-axis



DME control panel operation and video change

Rotation about the z-axis



DME control panel operation and video change

Rotating in the Target Coordinate Frame

Procedure

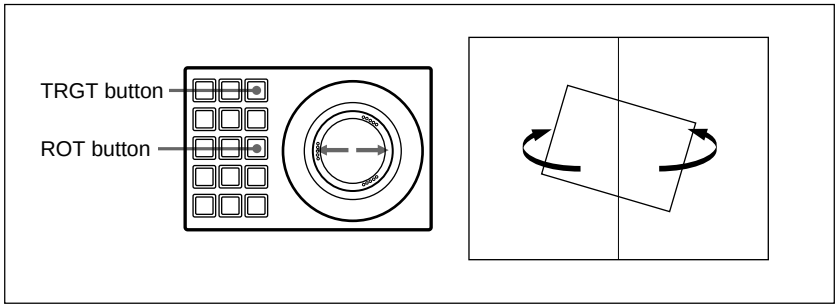
To rotate the image in the target coordinate frame, use the following procedure in the DME control panel.

1 Press the TRGT button, turning it on.

2 Press the ROT button, turning it on.

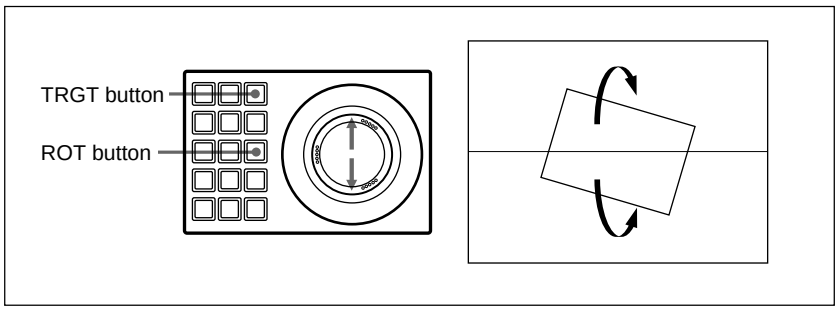
3 Move the trackball to rotate the image about the x- and y-axes. Turn the Z-ring to rotate the image about the z-axis.

Rotation about the y-axis



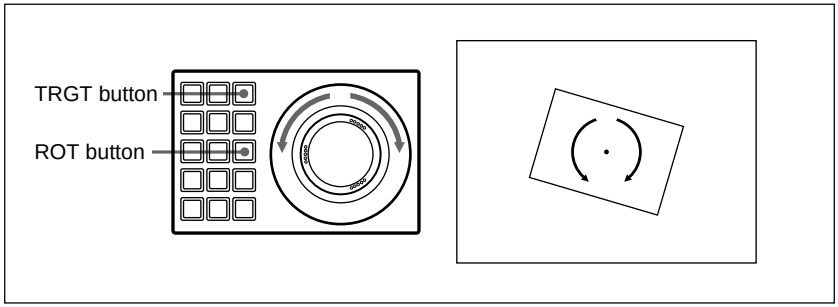
DME control panel operation and video change

Rotation about the x-axis



DME control panel operation and video change

Rotation about the z-axis



DME control panel operation and video change

Moving the Axes of Rotation

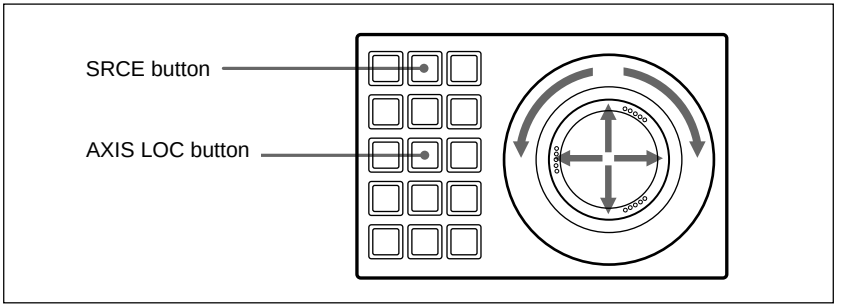
This section describes how to move the axes of rotation in either the source or target coordinate frame.

Moving the Axes of Rotation in the Source Coordinate Frame

Procedure

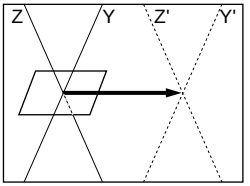
To move the axes of rotation in the source coordinate frame, use the following procedure in the DME control panel.

1. Press the SRCE button, turning it on.
2. Press the AXIS LOC button, turning it on.
3. Move the trackball to move the axes of rotation in the x- and y-directions.
   Turn the Z-ring to move the axes of rotation in the z-direction.

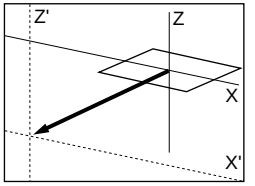


DME control panel operation

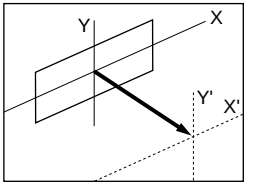
Position change



Movement along the x-axis



Movement along the y-axis



Movement along the z-axis

Note

If you make a LOC SIZE or ROT setting in the target coordinate frame, then switch to the source coordinate frame and move the axes, the image itself also moves.

Moving the Axes of Rotation in the Target Coordinate Frame

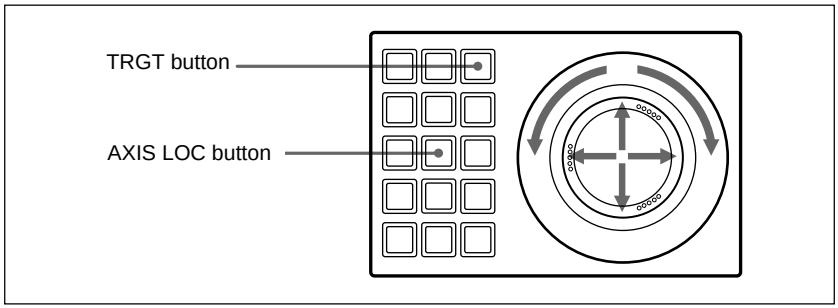
Procedure

To move the axes of rotation in the target coordinate frame, use the following procedure in the DME control panel.

1 Press the TRGT button, turning it on.

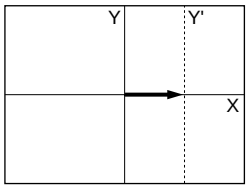
2 Press the AXIS LOC button, turning it on.

3 Move the trackball to move the axes of rotation in the x- and y-directions.
Turn the Z-ring to move the axes of rotation in the z-direction.

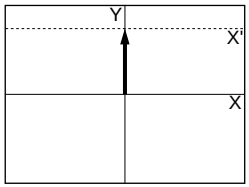


DME control panel operation

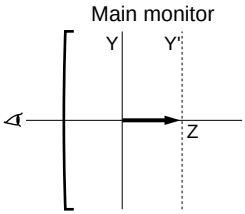
Position change



Movement along the x-axis



Movement along the y-axis



Movement along the z-axis

Magnifying or Shrinking the Image

This section describes how to magnify or shrink the overall image in either the source or target coordinate frame.

Magnifying or Shrinking in the Source Coordinate Frame

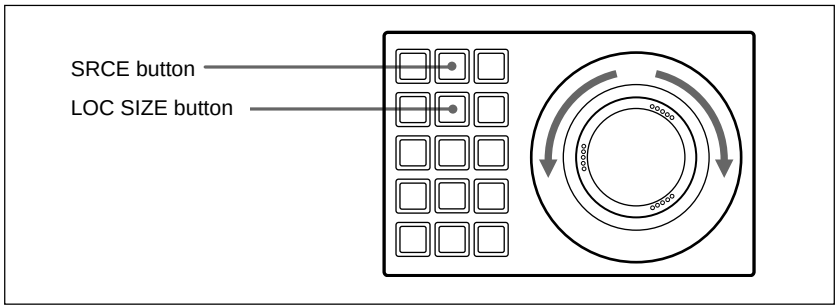
Magnifying or shrinking the image

To magnify or shrink the image in the source coordinate frame, use the following procedure in the DME control panel.

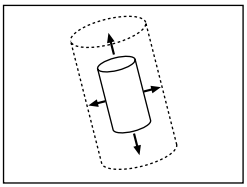
1 Press the SRCE button, turning it on.

2 Press the LOC SIZE button, turning it on.

3 Turn the Z-ring clockwise to magnify or counterclockwise to shrink the image.



DME control panel operation



Video change

Magnifying or Shrinking in the Target Coordinate Frame

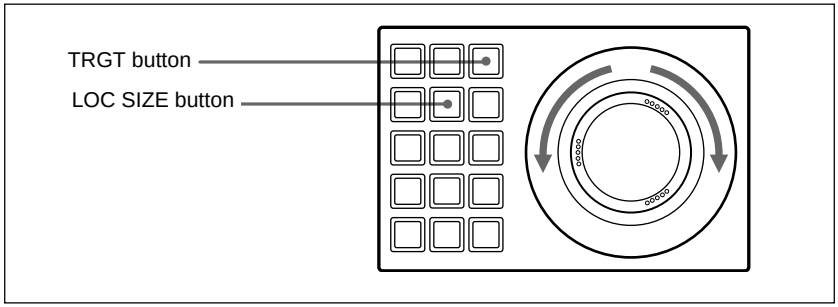
Magnifying or shrinking the image

To magnify or shrink the image in the target coordinate frame, use the following procedure in the DME control panel.

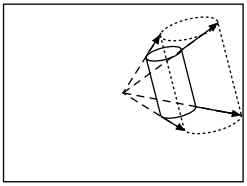
1 Press the TRGT button, turning it on.

2 Press the LOC SIZE button, turning it on.

3 Turn the Z-ring clockwise to magnify or counterclockwise to shrink the image.



DME control panel operation



Video change

Changing the Skew, Aspect Ratio or Perspective of the Image

This section describes how to change the skew, aspect ratio or perspective of the image.

Changing the Skew or Aspect Ratio of the Image

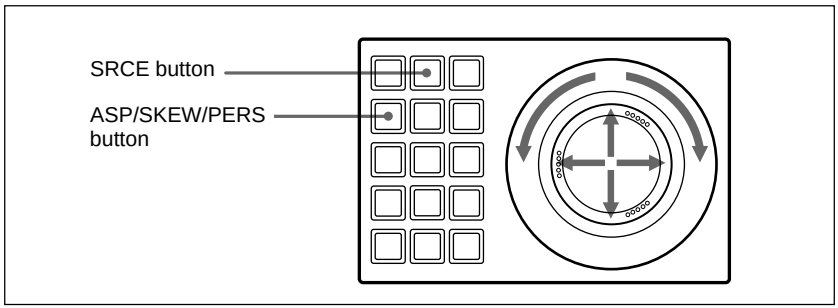
Procedure

To change the skew or aspect ratio of the image, use the following procedure in the DME control panel.

1 Press the SRCE button, turning it on.

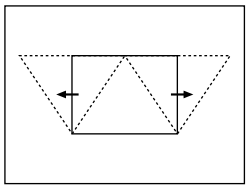
2 Press the ASP/SKEW/PERS button, turning it on.

3 Move the trackball in the x- and y-directions to change the skew of the image.
Turn the Z-ring to change the aspect ratio.

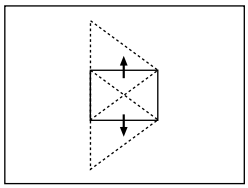


DME control panel operation

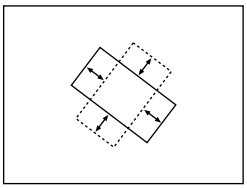
Video change



Changing the skew in the x-direction



Changing the skew in the y-direction



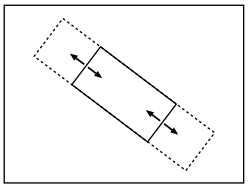
Changing the aspect ratio

Changing the size of the image in the x- and y-directions independently (X, Y, and RATE)

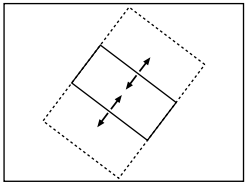
To adjust the size of the image in the x- and y-directions independently, in step 2 on the previous page, hold down the SHIFT button in the keyframe control panel while pressing the ASP/SKEW/PERS button to light it green.

In this state, trackball operation adjusts the size of the image in the x- or y-direction only.

Aspect ratio adjustment with the Z-ring is the same as when you press the ASP/SKEW/PERS button alone (*see previous page*).



Change in the x-direction



Change in the y-direction

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Changing the Perspective

By moving the notional viewpoint of the image along the z-axis (in the target coordinate frame), you can change the apparent perspective of the image.

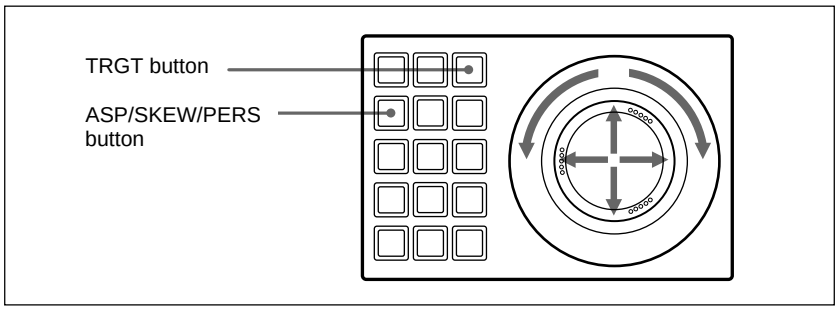
Procedure

To change the perspective of the image, use the following procedure in the DME control panel.

1 Press the TRGT button, turning it on.

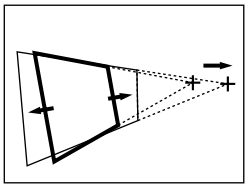
2 Press the ASP/SKEW/PERS button, turning it on.

3 Move the trackball to change the vanishing point in the x- and y-directions.
Turn the Z-ring to change the perspective in the z-direction.

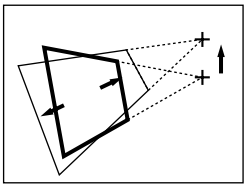


DME control panel operation

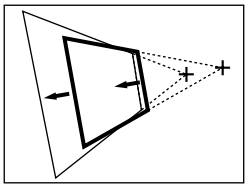
Movement of the vanishing point or change in perspective



Change in the x-direction



Change in the y-direction



Change in the z-direction

Setting Number of Rotations (SPIN Function)

When creating an effect involving rotation of the image, you can use the "SPIN" function to specify the number of rotations of the image. Using the ROT button in normal "ROTATION" mode, the image may not rotate correctly about the required axis, but using the SPIN function you can create effects in which the image rotates about a specified axis.

Use the following procedure to use the SPIN function to specify the number of rotations of the image.

1 To set the number of rotations in the source coordinate frame, press the SRCE button, turning it on.
To set the number of rotations in the target coordinate frame, press the TRGT button, turning it on.

2 Hold down the SHIFT button in the keyframe control panel while pressing the ROT button.

The ROT button lights green.

3 To cause a spin about the x- or y-axis, turn the trackball. To cause a spin about the z-axis, turn the Z-ring.

To exit from the SPIN function, press any of the buttons used for transformations (including the ROT button).

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Special Effects Operations

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Using Menus

Most special effects operations involve the use of menus.
Basic operation of the menus is the same as for the various switcher menus.
This section describes only the points specific to DME operations.

For details of basic menu operations, refer to the User's Guide Volume 1.

Recalling a menu

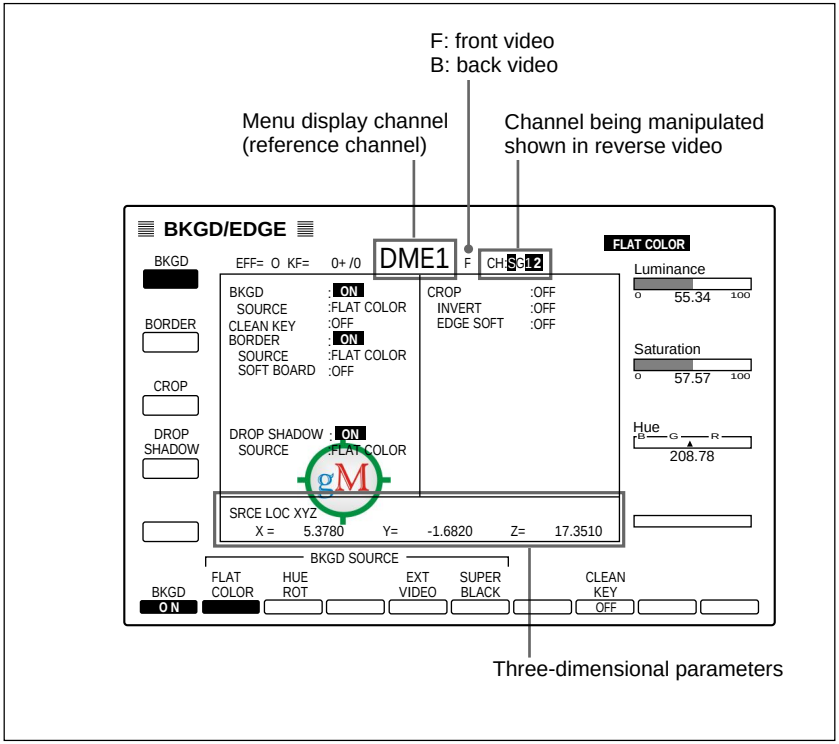
Press one of the top menu selection buttons in the switcher control panel.
The following table lists the buttons and menus used for DME operations.

Top menu selection buttons and menus used for DME operations

Button	Menu name	Function	See page
BKGD EDGE	BKGD & EDGE	Background and edge operations	4-7
FREEZE RECUR	FREEZE & RECURSIVE	Freeze frame and afterimage effects	4-15
PIC MOD	PICTURE MODIFY	Deformations of the overall image	4-27
VIDEO MOD	VIDEO MODIFY	Deformations of the video signal	4-33
NON-LINEAR	NONLINEAR	Nonlinear effects	4-42
LIGHT EFF	LIGHT EFFECT	Lighting effects	4-91
IN OUT	IN/OUT	Input and output signal operations	5-4
DME STATS	DME STATUS	Status display	8-4
DME SETUP	DME SETUP	Setup operations	9-2

Example menu display

As an example, pressing the BKGD EDGE button produces the following display.



Example of BKGD/EDGE menu display

Item selection and indications in this manual

In the example shown above, pressing item selection button 2 selects the corresponding item “BORDER”. This is shown as “2 (BORDER)”.
In some cases it is also necessary to hold down the SHIFT button and press the item selection button to make a selection. *See for example “BLUR Settings” (page 4-29).*

Channel selection

Channels which can be used

For the HDS-7150 internal DME function, the available DME channel or channels depend on the configuration of the HKDS-7061 Video Modifier Board and HKDS-7071 Digital Multi Effects Board installation.

Channel	Option configuration	
	HKDS-7061 and HKDS-7071	HKDS-7061 only
DME channel 1	Can be used.	Cannot be used.
DME channel 2	Can be used.	
Global channel	Can be used.	Cannot be used.

For details of the effects provided by each channel, see page 1-7.

Selecting the channel

To select the channel or channels subject to DME operations, use the buttons in the switcher control panel numeric keypad section.
With the EFF button or SNAPSHOT button lit, press any of the DME1, DME2 and DME GLBL buttons from among the subregister selection buttons. If you press multiple buttons, the corresponding channels are all selected.

Selecting the menu display channel

When you have selected multiple channels, only the reference channel is shown on the menu display.
The button for the reference channel lights green, and the buttons for the other selected channels light amber.
To change the reference channel, hold down the EFF button or SNAPSHOT button, and press the desired channel button.

Input video selection

Use the auxiliary buses of the switcher for input video to the internal DME as follows.

Channel number	Application	Bus used
DME 1	Video input	AUX 1
	Key input	AUX 2
	External video input	AUX 3 (same as DME 2)
DME 2	Video input	VIDEO MOD
	Key input	VIDEO MOD (Hold down the VIDEO MOD button and press the input select button.)
	External video input	AUX 3 (same as DME 1)

Background and Edge Effects

This section describes how to operate the background and edge effects.

When the HKDS-7061 and HKDS-7071 are both installed, you can use the BKGD, BORDER, CROP, and DROP SHADOW effects on DME channel 1. You can also use the BORDER and CROP effects on DME channel 2. When only the HKDS-7061 is installed, you can use the BORDER and CROP effects on DME channel 2.

Option configuration	**HKDS-7061 and HKDS-7071**		**HKDS-7061 only**
Channel	DME 1	DME 2	DME 2
BKGD & EDGE	Available	Not available	Not available
BORDER	Available	Available	Available
CROP	Available	Available	Available
DROP SHADOW	Available	Not Available	Not Available

Effect Selection

Top menu selection

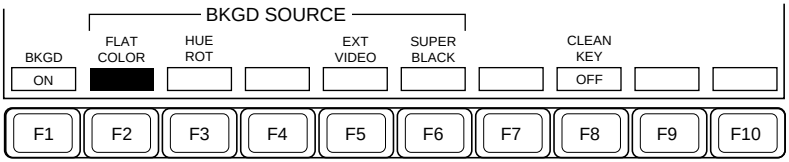
The background and edge effects are selected from the BKGD/EDGE menu.

In the BKGD/EDGE menu, press the required item selection button as shown in the following table to select the effect.

Item	**Function**	**Setting**
1 (BKGD)	Adjust background color.	4-7
2 (BORDER)	Apply a border to the image.	4-9
3 (CROP)	Use a frame to crop the image.	4-11
4 (DROP SHADOW)	Apply a drop shadow to the image.	4-13

BKGD (Background) Settings

In the BKGD/EDGE menu, select item 1 (BKGD) to display the BKGD menu.



Function key indications in the BKGD menu

The following are some of the operations carried out in this menu.

Toggling the background on and off – F1 (BKGD)

Press F1 (BKGD).

When the background is on, the following settings are enabled.

Selecting a single-color background – F2 (FLAT COLOR)

Use the following procedure.

1 Press F2 (FLAT COLOR).

2 Adjust the parameters as follows.

Knob	Parameter	Setting
1	Luminance	Set luminance (0.00 to 100.00)
2	Saturation	Set saturation (0.00 to 100.00)
3	Hue	Set hue (0.00 to 359.99)

Selecting a background with a changing color – F3 (HUE ROT)

Use the following procedure.

1 Press F3 (HUE ROT).

2 Adjust the parameters as follows.

Knob	Parameter	Setting
1	Luminance	Set luminance (0.00 to 100.00)
2	Saturation	Set saturation (0.00 to 100.00)
3	Speed	Set rate of change of hue per frame (–12.00 to +12.00)

Using an external video signal for the background – F5 (EXT VIDEO)

To use the video signal selected on the AUX 3 bus as the background, press F5 (EXT VIDEO).

Selecting a super-black background – F6 (SUPER BLACK)

Use the following procedure.

1 Press F6 (SUPER BLACK).

2 Adjust the following parameter.

Knob	Parameter	Setting
1	Level	Set super-black level (–40.00 to 0.00)

Setting the background to black for a clean key – F8 (CLEAN KEY)

When sending a DME video output and key output to the switcher to combine them using a clean key, press F8 (CLEAN KEY), turning it on. The background becomes black.

Note

When F1 (BKGD) is set to “OFF”, the DME video output produces a video image with sharp edges, and the key signal has an image with the key projecting slightly outside. This is so that when F1 (BKGD) is set to “ON”, or when the DME image is used for keying on the switcher, it is possible to apply soft edge processing to the image.
The clean key mode is a mode in which without setting F1 (BKGD) to ON, the DME image edges are made soft, and the DME image can be used for keying on the switcher.

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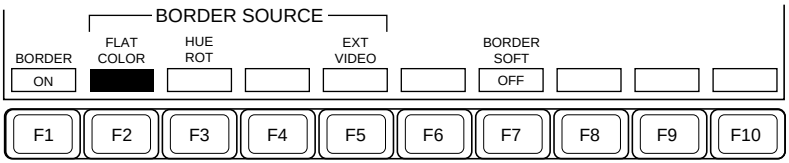
BORDER Settings

In the BKGD/DGE menu, select item 2 (BORDER) to display the BORDER menu.



Function key indications in the BORDER menu

The following are some of the operations carried out in this menu.

Note

It is not possible to apply two or more of the border, mask, and lighting effects simultaneously.

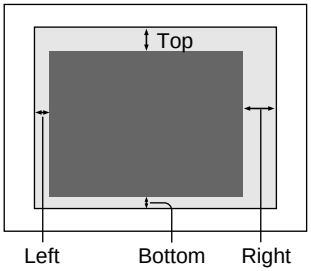
Applying a border – F1 (BORDER)

This applies a border to the frame position specified as the crop position *(see page 4-11)*.
Use the following procedure. The positive direction is defined as on the inside of the frame and the negative direction is defined as on the outside.

1 Set F1 (BORDER) to “ON”.

2 Use the knobs to adjust the following parameters.

Knob	Parameter	Setting
1	H	Set same width for left and right edge borders.
2	V	Set same width for top and bottom edge borders.
3	All	Set same width for all four edge borders.
4	Density	Set border density (0.00 to 100.00)
1	Top	Set width of top edge border. (–0.20 to +8.00)
2	Left	Set width of left edge border. (–0.20 to +8.00)
3	Right	Set width of right edge border. (–0.20 to +8.00)
4	Bottom	Set width of bottom edge border. (–0.20 to +8.00)



Selecting the signal for the border – F2 (FLAT COLOR), F3 (HUE ROT) and F5 (EXT VIDEO)

Press one of F2 (FLAT COLOR), F3 (HUE ROT) and F5 (EXT VIDEO) and adjust the parameters as required.

The significance of the parameters and their setting ranges are the same as for a background. For details, see the section "BKGD Settings" (page 4-7).

Softening the border – F7 (BORDER SOFT)

Use the following procedure.

1 Set F7 (BORDER SOFT) to "ON".

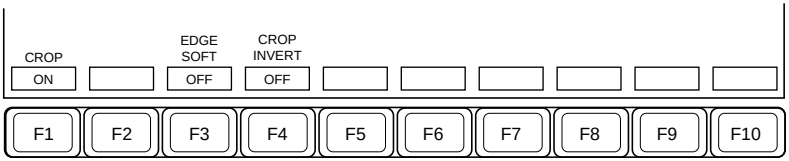
2 Adjust the following parameters.

Knob	Parameter	Setting
1	Inner Soft	Set degree of softening of inner edge (0.00 to 100.00)
2	Outer Soft	Set degree of softening of outer edge (0.00 to 100.00)
3	All	Set degree of softening of inner and outer edges
4	Density	Set border density (0.00 to 100.00)

CROP Settings

The crop effect shrinks the frame so that only a portion of the image is visible.

In the BKGD/EDGE menu, select item 3 (CROP) to display the CROP menu.



Function key indications in the CROP menu

The following are some of the operations carried out in this menu.

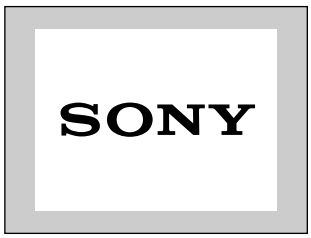
Applying the cropping effect – F1 (CROP)

Use the following procedure.

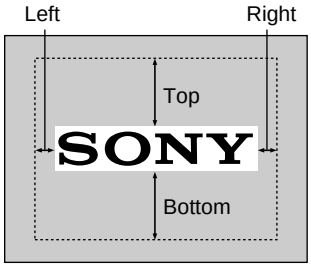
1 Set F1 (CROP) to “ON”.

2 Adjust the following parameters.

Knob	Parameter	Setting
1	H	Set same cropping amount for left and right sides
2	V	Set same cropping amount for top and bottom sides
3	All	Set same cropping amount for all four sides
1	Top	Set cropping amount for top side (–4.00 to +4.00)
2	Left	Set cropping amount for left side (–5.00 to +5.00)
3	Right	Set cropping amount for right side (–5.00 to +5.00)
4	Bottom	Set cropping amount for bottom side (–4.00 to +4.00)



CROP OFF



CROP ON

Softening the cropping edge – F3 (EDGE SOFT)

This function is only enabled when F1 (BORDER) in the BORDER menu *(see page 4-9)* is “OFF”.

Use the following procedure.

1 Set F3 (EDGE SOFT) to “ON”.

2 Adjust the following parameter.

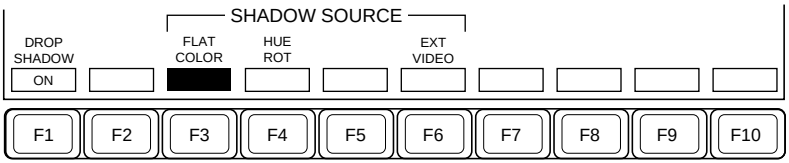
Knob	Parameter	Setting
1	Soft	Set the degree of softness of the edge (0.00 to 100.00)

Inverting the sense of cropping – F4 (CROP INVERT)

Set F4 (CROP INVERT) to “ON”.
This interchanges the image area and the cropped area.

DROP SHADOW Settings

In the BKGD/EDGE menu, select item 4 (DROP SHADOW) to display the DROP SHADOW menu.



Function key indications in the DROP SHADOW menu

The following are some of the operations carried out in this menu.

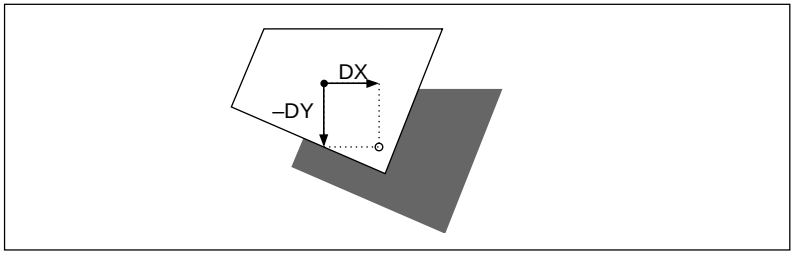
Applying a drop shadow – F1 (DROP SHADOW)

Use the following procedure.

1 Press F1 (DROP SHADOW), turning it on.

2 Adjust the following parameters.

Knob	Parameter	Setting
1	DX	Set x-coordinate of drop shadow position (–4.00 to +4.00)
2	DY	Set y-coordinate of drop shadow position (–3.00 to 0.00)
4	Density	Set shadow density (0.00 to 100.00)



Selecting the signal for the drop shadow – F3 (FLAT COLOR), F4 (HUE ROT) and F6 (EXT VIDEO)

Press one of F3 (FLAT COLOR), F4 (HUE ROT) and F6 (EXT VIDEO) and adjust the parameters as required.

The significance of the parameters and their setting ranges are the same as for a background. For details, see the section "BKGD Settings" (page 4-7).

Freeze and Afterimage Effects

This section describes how to operate the image freeze effects and various effects with recursive use of memory.

Input freeze

When both the HKDS-7071 and HKDS-7061 are installed, you can carry out an input freeze on both channels, DME 1 and DME 2. When only the HKDS-7061 is installed, you can carry out an input freeze on the DME 2 channel only.

Recursive effects

When both the HKDS-7071 and HKDS-7061 are installed, you can use recursive effects on the DME 1 channel. When only the HKDS-7061 is installed, recursive effects are not available.

Option configuration	HKDS-7061 and HKDS-7071		HKDS-7061 only
Channel	DME 1	DME 2	DME 2
INPUT FREEZE	Available	Available	Available
RECURSIVE	Available	Not available	Not available

Effect Selection

Top menu selection

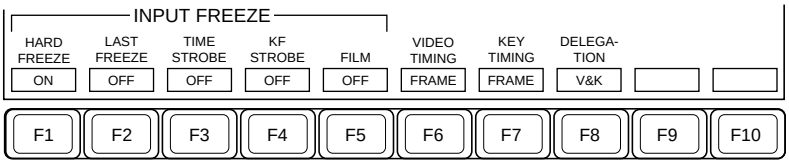
The freeze and afterimage effects are selected from the FREEZE & RECURSIVE menu.

Press the required item selection button as shown in the following table to select the effect.

Item selection button	Function	See page
1 (INPUT FREEZE)	Freeze input video.	4-15
2 (RECUR)	Apply various effects with recursive use of memory.	4-17

INPUT FREEZE Settings

In the FREEZE & RECURSIVE menu, select item 1 (INPUT FREEZE) to display the INPUT FREEZE menu.



Function key indications in the INPUT FREEZE menu

The following are some of the operations carried out in this menu.
Note that only one of F1 to F5 can be set to ON at any one time.

Freezing the input frame – F1 (HARD FREEZE)

Set F1 (HARD FREEZE) to “ON”.
This freezes the input video.

Recalling the last freeze frame – F2 (LAST FREEZE)

Set F2 (LAST FREEZE) to “ON”.
This recalls the last frame frozen on the output monitor.

Selecting a stroboscope effect – F3 (TIME STROBE)

By freezing the input video at regular intervals of a number of frames, you can create a stroboscopic effect.

Use the following procedure.

1 Set F3 (TIME STROBE) to “ON”.

2 Adjust the following parameters.

Knob	Parameter	Setting
1	Dur	Set the interval (in frames) between freeze frames (0.00 to 255.00)
2	Live	Set the percentage of the interval between two successive freeze frames for which the video is run (0.00 to 100.00)

Strobing on each keyframe – F4 (KF STROBE)

Set F4 (KF STROBE) to “ON”.
This freezes the input video on each keyframe of the effect.

Obtaining an impression of film frame flicker – F5 (FILM)

Use the following procedure.

1 Set F5 (FILM) to “ON”.

2 Adjust the following parameter.

Knob	Parameter	Setting
1	Film	Set degree of film frame flicker (0.00 to 100.00)

Selecting the video freeze timing – F6 (VIDEO TIMING)

Press F6 (VIDEO TIMING), to select one of the following:
FRAME: freeze a frame.
FIELD1: freeze the first field of a frame.
FIELD2: freeze the second field of a frame.

Selecting the keyframe freeze timing – F7 (KEY TIMING)

Press F7 (KEY TIMING) to cycle through the possibilities. The selections (FRAME, FIELD1, FIELD2) are the same as for the video freeze timing above.

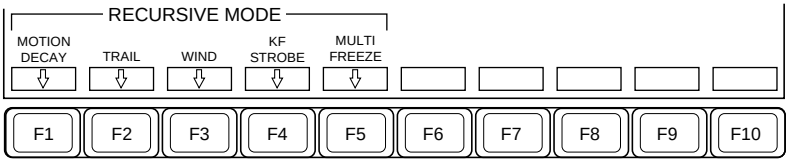
Selecting whether video or key images are frozen – F8 (DELEGATION)

The freeze function can apply to the video image, or to the key image, or to both.
Press F8 (DELEGATION) to select one of the following:
V & K: Control both video and key images simultaneously.
VIDEO: Control video images only. The key image continues unchanged.
KEY: Control key images only. The video image continues unchanged.

RECURSIVE Effect Selection

This section describes how to select the recursive memory effects, and display the menu.

In the FREEZE & RECURSIVE menu, select item 2 (RECUR) to display the RECURSIVE menu.



Function key indications in the RECURSIVE menu

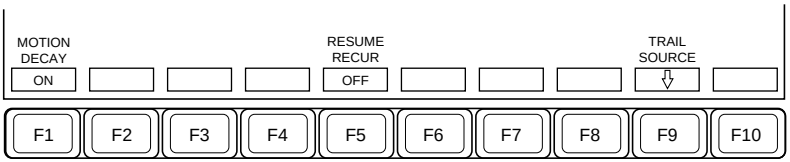
In this menu, press the required function key as shown in the following table to select the corresponding menu.

Function key	Function	See page
F1 (MOTION DECAY)	Blur the motion of a moving video by creating afterimages.	4-18
F2 (TRAIL)	Freeze the input video at regular intervals, leaving an afterimage trail.	4-20
F3 (WIND)	Freeze the input video at regular intervals, and move the frozen image in a particular direction.	4-21
F4 (KF STROBE)	Freeze the video each time the effect passes a keyframe, leaving a trail.	4-23
F5 (MULTI FREEZE)	Freeze the video each time the effect passes a keyframe, dividing up the image into a matrix.	4-24

MOTION DECAY Settings

This effect blurs the motion of a moving video by creating afterimages.

In the RECURSIVE menu, press F1 (MOTION DECAY) to display the MOTION DECAY menu.



Function key indications in the MOTION DECAY menu

The following are some of the operations carried out in this menu.

Blurring motion – F1 (MOTION DECAY)

Set F1 (MOTION DECAY) to “ON”.

Deleting the afterimage remaining in memory at each keyframe – F5 (RESUME RECUR)

Set F5 (RESUME RECUR) to “ON”.
Each time the effect passes a keyframe, the recursive memory is cleared, before writing the new afterimage.

Using a different color or video for a part of the trail – F9 (TRAIL SOURCE)

Press F9 (TRAIL SOURCE) to display the TRAIL SOURCE menu.

For details, see the next section “TRAIL SOURCE Settings”.

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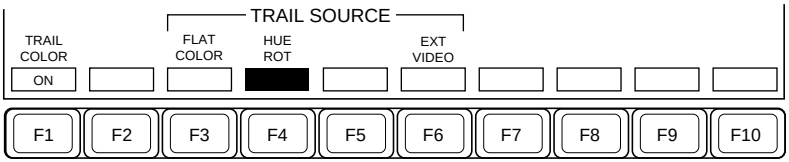
TRAIL SOURCE Settings

The afterimage part of a recursive effect can be replaced by different video.

In the MOTION DECAY menu, press F9 (TRAIL SOURCE) to display the TRAIL SOURCE menu.



Function key indications in the TRAIL SOURCE menu

Using different video for the afterimage part – F1 (TRAIL COLOR)

Set F1 (TRAIL COLOR) to “ON”.
This inserts a different video into the afterimage part of recursive effects.

Selecting the different video used for the afterimage part – F3 (FLAT COLOR), F4 (HUE ROT) and F6 (EXT VIDEO)

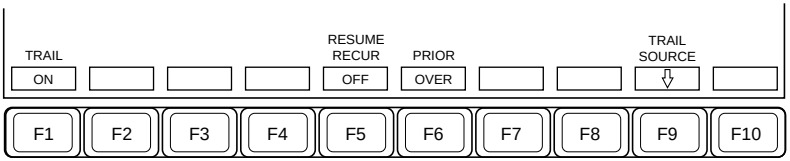
Press one of F3, F4 and F6 to select the video or color matte to be used for the afterimage part, and adjust the parameters as required.

For the significance of the parameters and their setting values are the same as for a background. For details, see “BKGD (Background) settings” (page 4-7.)

TRAIL Settings

This effect strobes the input video at regular intervals, leaving an afterimage trail.

In the RECURSIVE menu, press F2 (TRAIL) to display the TRAIL menu.



Function key indications in the TRAIL menu

The following are some of the operations carried out in this menu.

Making an afterimage trail – F1 (TRAIL)

Use the following procedure.

1 Set F1 (TRAIL) to “ON”.

2 Adjust the following parameters.

Knob	Parameter	Setting
1	Decay	Set degree of blurring of video signal (0.00 to 100.00)
2	Dust	Set degree of leaving stardust trails of afterimage (0.00 to 100.00)
3	Dur	Set interval between freeze frames (0.00 to 255.00)
4	Live	Set percentage of the interval between two successive freeze frames for which the video is run (0.00 to 100.00)

Deleting the afterimage remaining in memory at each keyframe – F5 (RESUME RECUR)

Set F5 (RESUME RECUR) to “ON”.
Each time the effect passes a keyframe, the recursive memory is cleared, before writing the new afterimage.

Changing the way in which freeze frames (afterimages) and moving video are superimposed – F6 (PRIOR)

Press F6 (PRIOR).
This cycles through the settings "OVER" and "UNDER" indications, changing the method of superimposition.
OVER: The moving video is on top.
UNDER: The moving video is underneath.

Using a different color or video for a part of the trail – F9 (TRAIL SOURCE)

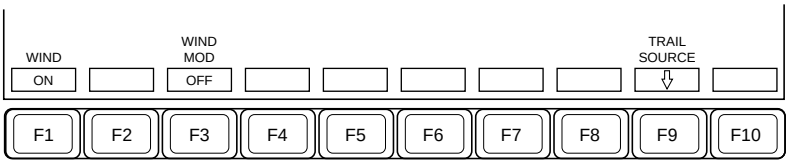
Press F9 (TRAIL SOURCE) to display the TRAIL SOURCE menu.

For details, see the section "TRAIL SOURCE Settings" (page 4-19).

WIND Settings

This freezes the input video at regular intervals, and moves the frozen image in a particular direction.

In the RECURSIVE menu, press F3 (WIND) to display the WIND menu.



Function key indications in the WIND menu

The following are some of the operations carried out in this menu.

Applying the WIND effect – F1 (WIND)

Use the following procedure.

1 Set F1 (WIND) to “ON”.

2 Adjust the following parameters.

Knob	Parameter	Setting
1	Decay	Set degree of blurring of video signal (0.00 to 100.00)
3	Dust	Set degree of leaving stardust trails of afterimage (0.00 to 100.00)
1	H Shift	Set amount of movement horizontally (–100.00 to +100.00)
2	V Shift	Set amount of movement vertically (–100.00 to +100.00)

Applying modulation to “WIND” – F3 (WIND MOD)

Use the following procedure.

1 Set F3 (WIND MOD) to “ON”.

2 Adjust the following parameters.

Knob	Parameter	Setting
1	H Amp	Set amplitude of horizontal modulation (0.00 to 100.00)
2	H Freq	Set frequency of horizontal modulation (0.00 to 100.00)
3	V Amp	Set amplitude of vertical modulation (0.00 to 100.00)
4	V Freq	Set frequency of vertical modulation (0.00 to 100.00)

Using a different color or video for a part of the trail – F9 (TRAIL SOURCE)

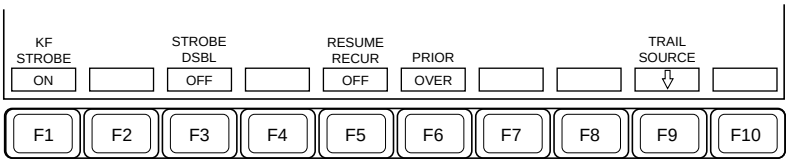
Press F9 (TRAIL SOURCE) to display the TRAIL SOURCE menu.

For details, see the section “TRAIL SOURCE Settings” (page 4-19).

KF (Keyframe) STROBE Settings

This freezes the video each time the effect passes a keyframe.

In the RECURSIVE menu, press F4 (KF STROBE) to display the KEYFRAME STROBE menu.



Function key indications in the KEYFRAME STROBE menu

The following are some of the operations carried out in this menu.

Leaving an afterimage trail – F1 (KF STROBE)

Use the following procedure.

1 Set F1 (KF STROBE) to “ON”.

2 Adjust the following parameters.

Knob	Parameter	Setting
1	Decay	Set degree of blurring of video signal (0.00 to 100.00)
2	Dust	Set degree of leaving stardust trails of afterimage (0.00 to 100.00)

Not leaving afterimages – F3 (STROBE DSBL)

Set F3 (STROBE DSBL) to “ON”.
In this case no afterimages are left even when the effect passes a keyframe.

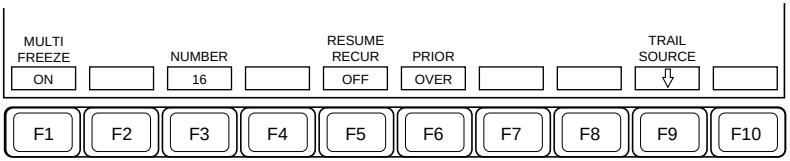
The following operations are also possible in the same way as for a trail:
- Deleting the afterimage remaining in memory at each keyframe – F5 (RESUME RECUR)
- Changing the way in which freeze frames (afterimages) and moving video are superimposed – F6 (PRIOR)
- Applying a color to or selecting a video source for the trail – F9 (TRAIL SOURCE)

For details, see page 4-20.

MULTI FREEZE Settings

This effect freezes the video each time the effect passes a keyframe, dividing up the image into a matrix.

In the RECURSIVE menu, press F5 (MULTI FREEZE) to display the MULTI FREEZE menu.



Function key indications in the MULTI FREEZE menu

The following are some of the operations carried out in this menu.

Applying the “multi-freeze” effect – F1 (MULTI FREEZE)

Use the following procedure.

1 Set F1 (MULTI FREEZE) to “ON”.

2 Adjust the following parameters.

Knob	Parameter	Setting
1	Decay	Set degree of blurring of video signal (0.00 to 100.00)
2	Dust	Set degree of leaving stardust trails of afterimage (0.00 to 100.00)

Selecting the position on the grid to be frozen

To select the position of the frozen image within the videospace, set the transformation mode as follows, and move the input image to the required position.

- In the source coordinate frame: LOC XYZ or LOC SIZE
- In the target coordinate frame: LOC XYZ

Note

No movement other than translation is possible, that is, no rotation or zooming.

The global channel parameters are not reflected.

Selecting the number of freeze insert pictures – F3 (NUMBER)

Press F3 (NUMBER) to select 4, 9, 16 or 25 pictures.

The following operations are also possible in the same way as for a trail:

- Deleting the afterimage remaining in memory at each keyframe – F5 (RESUME RECUR)
- Changing the way in which freeze frames (afterimages) and moving video are superimposed – F6 (PRIOR)
- Applying a color to or selecting a video source for the trail – F9 (TRAIL SOURCE)

For details, see page 4-20.

Overall Image Effects

This section describes how to operate the effects which change the overall appearance of the image.

When both the HKDS-7071 and HKDS-7061 are installed, you can use the MULTI MOVE, DEFOCUS, BLUR, and DIM effects on the DME 1 channel. On the DME 2 channel, you can use DEFOCUS and BLUR. When only the HKDS-7061 is installed, you can use DEFOCUS and BLUR on the DME 2 channel.

Option configuration	**HKDS-7061 and HKDS-7071**		**HKDS-7061 only**
Channel	DME 1	DME 2	DME 2
MULTI MOVE	Available	Not available	Not available
DEFOCUS	Available	Available	Available
BLUR	Available	Available	Available
DIM	Available	Not available	Not available

Effect Selection

Top menu selection

The overall image effects are selected from the PICTURE MODIFY menu.

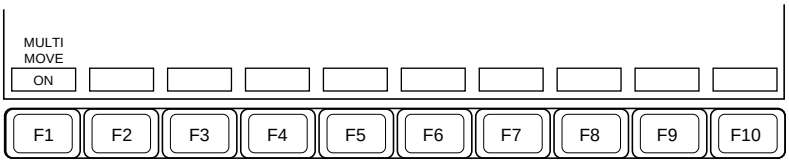
In the PICTURE MODIFY menu, press the required item selection button as shown in the following table to select the effect. For items indicated by "SHIFT," hold down the SHIFT button and press the item selection button.

Item selection button	**Function**	**See page**
1 (MULTI MOVE)	Divide up the image into a matrix, and insert moving video images.	4-27
2 (DEFOCUS)	Apply a blurring akin to camera shake to the image.	4-28
SHIFT 2 (BLUR)	Apply a rounded blurring to the edges in the image.	4-29
3 (DIM)	Make the image dim into the distance.	4-30

MULTI MOVE Settings

This effect divides up the image into a matrix of moving pictures.

In the PICTURE MODIFY menu, select item 1 (MULTI MOVE) to display the MULTI MOVE menu.



Function key indications in the MULTI MOVE menu

The following operation is carried out in this menu.

Applying the “multi-move” function – F1 (MULTI MOVE)

Use the following procedure.

1 Set F1 (MULTI MOVE) to “ON”.

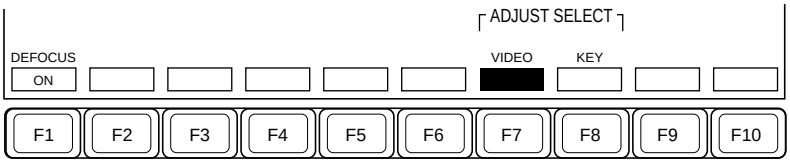
2 Adjust the following parameters.

Knob	Parameter	Setting
3	Size	Set reduction ratio (0.00 to 100.00)
4	Aspect	Set aspect ratio of reduced pictures (–100.00 to +100.00)

DEFOCUS Settings

This effect applies a blurring akin to camera shake to the image.

In the PICTURE MODIFY menu, select item 2 (DEFOCUS) to display the DEFOCUS menu.



Function key indications in the DEFOCUS menu

The following operation is carried out in this menu.

Applying a blurring akin to camera shake – F1 (DEFOCUS), F7 (VIDEO) and F8 (KEY)

Use the following procedure.

1 Set F1 (DEFOCUS) to “ON”.

2 Press F7 (VIDEO) or F8 (KEY), then adjust the following parameters.

Knob	Parameter	Setting
1	H	Set horizontal defocusing (0.00 to 100.00)
2	V	Set vertical defocusing (0.00 to 100.00)
3	All	Set horizontal and vertical defocusing

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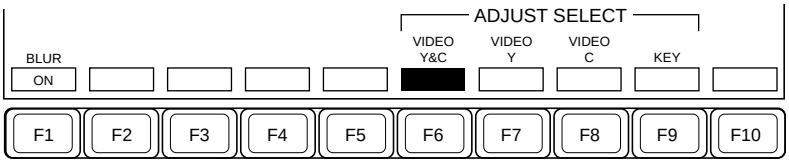
BLUR Settings

This effect applies a rounded blurring to the edges in the image.

In the PICTURE MODIFY menu, hold down the SHIFT button and select item 2 (BLUR) to display the BLUR menu.



Function key indications in the BLUR menu

The following operation is carried out in this menu.

Applying a rounded blurring to the edges – F1 (BLUR)

Use the following procedure.

1 Set F1 (BLUR) to “ON”.

2 Press one of F6 to F9 to select what you want to adjust.
F6 (VIDEO Y&C): Luminance and chrominance of the video signal
F7 (VIDEO Y): Luminance of the video signal
F8 (VIDEO C): Chrominance of the video signal
F9 (KEY): Key signal

3 Adjust the following parameters.

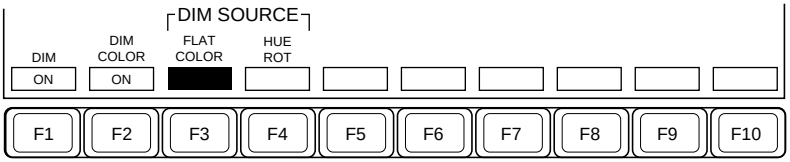
Knob	Parameter	Setting
1	H	Set degree of blurring horizontally (0.00 to 100.00)[a)]
2	V	Set degree of blurring vertically (0.00 to 100.00)[a)]
3	All	Set degree of blurring horizontally and vertically

a) For the F6 (VIDEO Y & C) setting, the parameter values are not shown, but are reflected in the VIDEO Y and VIDEO C parameters.

DIM Settings

The “dim” effect makes the image darker as it recedes into the distance (i.e. along the z-axis).

In the PICTURE MODIFY menu, select item 3 (DIM) to display the DIM menu.



Function key indications in the DIM menu

The following are some of the operations carried out in this menu.

Applying the “dim” function – F1 (DIM)

Use the following procedure.

1 Set F1 (DIM) to “ON”.

2 Adjust the following parameters.

Knob	Parameter	Setting
1	Start	Set position along z-axis at which dimming starts (–100.00 to +100.00)
2	Gain	Set rate at which dimming proceeds (0.00 to 100.00)

Dimming to a color other than black – F2 (DIM COLOR) to F4 (HUE ROT)

Use the following procedure.

1 Set F2 (DIM COLOR) to “ON”.

2 To select a uniform color, press F3 (FLAT COLOR), and to use a progressively changing hue, press F4 (HUE ROT).

3 Adjust the following parameters.

Knob	Parameter	Setting
1	Luminance	Set luminance (0.00 to 100.00)
2	Saturation	Set saturation (0.00 to 100.00)
3	Hue (when “FLAT COLOR” selected)	Set hue (0.00 to 359.99)
	Speed (when “HUE ROT” selected)	Set rate of change of hue per frame (–12.00 to +12.00)

Video Signal Effects

This section describes how to use various effects on the video signal, such as converting it to a negative signal.

When both the HKDS-7071 and HKDS-7061 are installed, you can use the VIDEO MODIFY effects on both channels, DME 1 and DME 2.
When only the HKDS-7061 is installed, you can use the VIDEO MODIFY effects on the DME 2 channel only.

Option configuration	**HKDS-7061 and HKDS-7071**		**HKDS-7061 only**
Channel	DME 1	DME 2	DME 2
VIDEO MODIFY	Available	Available	Available

Effect Selection

Top menu selection

The video signal effects are selected from the VIDEO MODIFY menu.

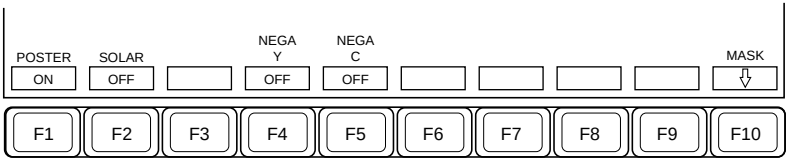
In the VIDEO MODIFY menu, press the required item selection button as shown in the following table to select the effect.

Item selection button	**Function**	**See page**
1 (POSTER NEGA)	Produce a posterized or negative image.	4-33
2 (SEPIA MONO)	Produce various monochrome image effects.	4-37
3 (CONTRAST)	Adjust the contrast of the image.	4-39
4 (MOSAIC)	Divide up the image into a matrix of rectangles, and average the signal within each rectangle.	4-40

POSTER (Posterization) & NEGA (Negative) Settings

Posterization reduces the number of quantization levels in the luminance signal, and correspondingly solarization reduces the number of quantization levels in the chrominance signal. The “NEGA” function produces a negative signal, but this may be applied to luminance and chrominance signals independently.

In the VIDEO MODIFY menu, select item 1 (POSTER NEGA) to display the POSTER & NEGA menu.



Function key indications in the POSTER & NEGA menu

The following are some of the operations carried out in this menu.

Applying posterization – F1 (POSTER)

Use the following procedure.

1 Set F1 (POSTER) to “ON”.

2 Adjust the following parameter.

Knob	Parameter	Setting
1	Post	Set degree of coarsening of luminance signal (0.00 to 100.00)

Applying solarization – F2 (SOLAR)

Use the following procedure.

1 Set F2 (SOLAR) to “ON”.
F1 (POSTER) and F2 may both be on simultaneously.

2 Adjust the following parameter.

Knob	Parameter	Setting
2	Sola	Set degree of coarsening of chrominance signal (0.00 to 100.00)

Producing a negative picture – F4 (NEGA Y) and F5 (NEGA C)

Use the following procedure.

1. Set F4 (NEGA Y) to “ON”, to invert the luminance signal.
2. Set F5 (NEGA C) to “ON”, to invert the chrominance signal.
   F4 and F5 may both be on simultaneously.

Note

Setting F1 (POSTER) or F2 (SOLAR) to “ON” automatically disables the “sepia” function described in the next section *(page 4-37)*.

MASK Settings

When posterization, solarization, negative image, “sepia” cast, monochrome, contrast adjustment, mosaic or defocus effects are applied, you can apply a wipe pattern as a mask so that (in the “NORMAL” mode) the effect is only applied inside the wipe pattern. The INVERT function switches this so that the effect is only applied outside the mask pattern (box).

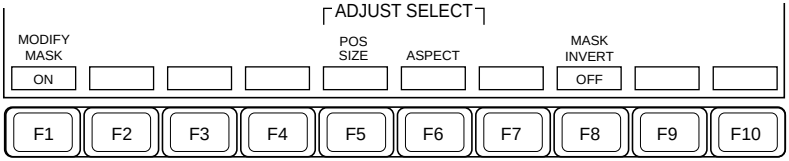
Note

It is not possible to apply two or more of the border, mask , and lighting effects simultaneously.

Masking the effect

In the POSTER & NEGA menu, press F10 (MASK).

The MASK menu appears.



Function key indications in the MASK menu

The same menu appears when you press F10 in other menus including the SEPIA & MONO, CONTRAST and MOSAIC menus.

Toggling the mask on and off – F1 (MODIFY MASK)

Set F1 (MODIFY MASK) to “ON” or “OFF”.

Changing the shape of the mask pattern – F5 (POS SIZE)

Press F5(POS SIZE), then adjust the following parameters.

Knob	Parameter	Setting
1	H	Set same masking amount for left and right sides
2	V	Set same masking amount for top and bottom sides
3	All	Set same masking amount for all four sides
1	Top	Set masking amount for top side (–4.00 to +4.00)
2	Left	Set masking amount for left side (–5.00 to +5.00)
3	Right	Set masking amount for right side (–5.00 to +5.00)
4	Bottom	Set masking amount for bottom side (–4.00 to +4.00)

Changing the aspect ratio of the mask pattern – F6(ASPECT)

Press F6(ASPECT), then adjust the following parameter.

Knob	Parameter	Setting
1	Aspect	Set the aspect ratio (–100.00 to +100.00)

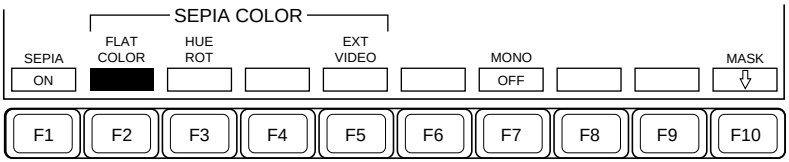
Inverting the mask area – F8 (MASK INVERT)

Set F8 (MASK INVERT) to “ON”.
The effect is only applied outside the mask area.

SEPIA & MONO (Monochrome) Settings

The “sepia” effect applies a cast of a particular hue (not necessarily sepia) over the entire video image. The monochrome effect makes the image monochrome.

In the VIDEO MODIFY menu, select item 2 (SEPIA MONO) to display the SEPIA & MONO menu.



Function key indications in the SEPIA & MONO menu

The following are some of the operations carried out in this menu.

Applying a cast – F1 (SEPIA) to F5 (EXT VIDEO)

Use the following procedure.

1 Set F1 (SEPIA) to “ON”.

2 Adjust the following parameters.

Knob	Parameter	Setting
1	Y	Set mix amount of “sepia” luminance signal (0.00 to 100.00)
2	C	Set mix amount of “sepia” chrominance signal (0.00 to 100.00)
3	All	Set mix amount of “sepia” chrominance and luminance signals

3 Press F2 (FLAT COLOR), F3 (HUE ROT) or F5 (EXT VIDEO) to select the cast signal to be laid over the image, using the same operations as for background settings.

The significance of the parameters and their setting ranges are the same as for a background. For details, see the section “BKGD Settings” (page 4-7).

Applying the monochrome effect – F7 (MONO)

Set F7 (MONO) to “ON”.
The color image changes to monochrome.

Note

If a “sepia” cast is applied, F1 (POSTER) and F2 (SOLAR) in the POSTER & NEGA menu are automatically turned off.

Applying a mask – F10 (MASK)

Press F10 (MASK) to display the MASK menu, then set F1 (MODIFY MASK) to “ON”.

For details on setting the pattern size, see the section “MASK Settings” (page 4-35).

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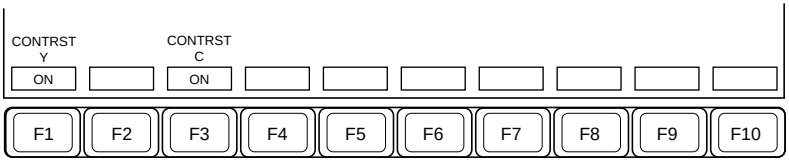
CONTRAST Settings

This effect adjusts the contrast of the image.

In the VIDEO MODIFY menu, select item 3 (CONTRAST) to display the CONTRAST menu.



Function key indications in the CONTRAST menu

The following are some of the operations carried out in this menu.

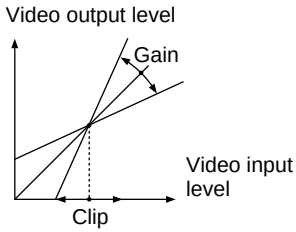
Adjusting the contrast of the luminance signal – F1 (CONTRST Y)

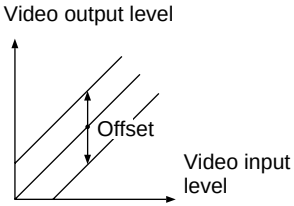
Use the following procedure.

1 Set F1 (CONTRST Y) to “ON”.

2 Adjust the following parameters.

Knob	Parameter	Setting
1	Clip	Set luminance clip level (–10.00 to +110.00)
2	Gain	Set luminance contrast gradient (–100.00 to +100.00)
3	Offset	Set offset reference level (–100.00 to +100.00)





Adjusting the contrast of the chrominance signal – F3 (CONTRST C)

Use the following procedure.

1 Set F3 (CONTRST C) to “ON”.

2 Adjust the following parameters.

Knob	Parameter	Setting
2	Gain	Set chrominance contrast gradient (–100.00 to +100.00)
3	Offset	Set offset reference level (–100.00 to +100.00)

Applying a mask – F10 (MASK)

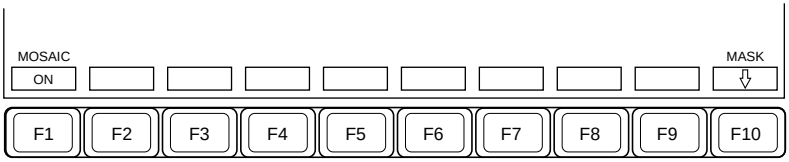
Press F10 (MASK) to display the MASK menu, then set F1 (MASK MODIFY) to “ON”.

For details on setting the pattern size, see the section “MASK Settings” (page 4-35).

MOSAIC Settings

This function divides up the image into a matrix of rectangles, and averages the signal within each rectangle, giving a mosaic effect.

In the VIDEO MODIFY menu, select item 4 (MOSAIC) to display the MOSAIC menu.



Function key indications in the MOSAIC menu

The following are some of the operations carried out in this menu.

Applying the mosaic effect – F1 (MOSAIC)

Use the following procedure.

1 Set F1 (MOSAIC) to “ON”.

2 Adjust the following parameters.

Knob	Parameter	Setting
1	Size	Set size of mosaic tile (0.00 to 100.00)
2	Aspect	Set aspect ratio of mosaic tile (–100.00 to +100.00)

Applying a mask – F10 (MASK)

Press F10 (MASK) to display the MASK menu, then set F1 (MASK MODIFY) to “ON”.

For details on setting the pattern size, see the section “MASK Settings” (page 4-35).

Nonlinear Effects

This section describes how to use nonlinear effects to provide a variety of whole-picture transformations.

When both the HKDS-7071 and HKDS-7061 are installed, you can use nonlinear effects on the DME 1 channel.
When only the HKDS-7061 is installed, nonlinear effects are not available.

Option configuration	**HKDS-7061 and HKDS-7071**		**HKDS-7061 only**
Channel	DME 1	DME 2	DME 2
NON-LINEAR	Available	Not available	Not available

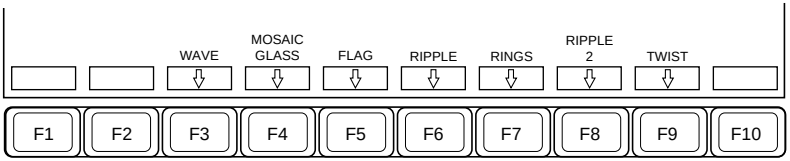
Effect Selection

Top menu selection

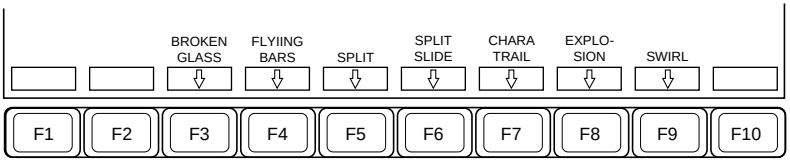
The nonlinear effects are selected from the NONLINEAR menu.

The NONLINEAR menu contains four sets of function key indications, selected with item selection buttons 1 to 4.

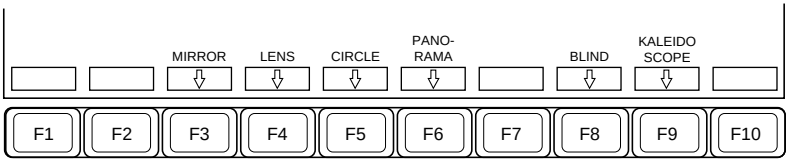
Item	**Function**	**See page**
1	Group 1 function key indications	4-43
2	Group 2 function key indications	4-44
3	Group 3 function key indications	4-44
4	Group 4 function key indications	4-44



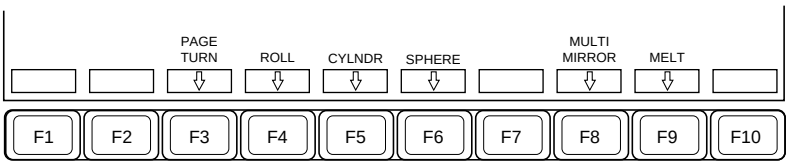
Function key indications in the NONLINEAR menu (group 1)



Function key indications in the NONLINEAR menu (group 2)



Function key indications in the NONLINEAR menu (group 3)



Function key indications in the NONLINEAR menu (group 4)

Selection from each group

In the NONLINEAR menu, press the required function key as shown in the following tables to select the effect.

Note

It is only possible to have one nonlinear effect selected at a time. Therefore, setting one of these functions to “ON” automatically switches an existing “ON” function off.

Selecting from the first set of function key indications

Function key	Function	See page
F3 (WAVE)	Provide a wavy effect on the image.	4-45
F4 (MOSAIC GLASS)	Provide a longitudinal wave effect on the image.	4-52
F5 (FLAG)	Provide the effect of a waving flag.	4-52
F6 (RIPPLE)	Create ripples.	4-53
F7 (RINGS)	Break the picture up into rings.	4-55
F8 (RIPPLE2)	Provide a rippling effect similar to RIPPLE.	4-57
F9 (TWIST)	Apply a twisting effect.	4-59

Selecting from the second set of function key indications

Function Key	Function	See page
F3 (BROKEN GLASS)	Shatter the picture into fragments.	4-61
F4 (FLYING BARS)	Break the picture into separately moving strips.	4-62
F5 (SPLIT)	Split the picture horizontally and vertically.	4-63
F6 (SPLIT SLIDE)	Break the picture into strips moving apart alternately.	4-65
F7 (CHARA TRAIL)	Provide the effect of pulling out a “tail” from a peripheral part of the image.	4-67
F8 (EXPLOSION)	Provide an effect of the image exploding and breaking into fine pieces.	4-69
F9 (SWIRL)	Apply a swirling effect.	4-71

Selecting from the third set of function key indications

Function Key	Function	See page
F3 (MIRROR)	Reflect part of the image.	4-72
F4 (LENS)	Provide the effect of seeing part of the image through a lens.	4-73
F5 (CIRCLE)	Make the image circular.	4-75
F6 (PANORAMA)	Provide an effect of enhanced perspective by curving the upper and lower edges of the image.	4-76
F8 (BLIND)	Divide the image into bars or wedges, and rotate the individual pieces.	4-77
F9 (KALEIDOSCOPE)	Provide a kaleidoscope-like effect.	4-78

Selecting from the fourth set of function key indications

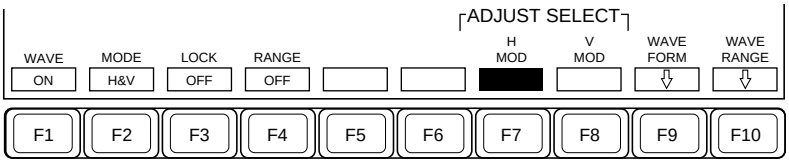
Function Key	Function	See page
F3 (PAGE TURN)	Provide the effect of a page turning.	4-80
F4 (ROLL)	Provide the effect of rolling the image up like a scroll.	4-82
F5 (CYLNDER)	Provide the effect of wrapping the image around a cylinder.	4-83
F6 (SPHERE)	Provide the effect of wrapping the image around a sphere.	4-85
F8 (MULTI MIRROR)	Provide arrays of alternately mirror-image and non-mirror-image portions.	4-86
F9 (MELT)	Provide an effect as though the image were melting away from the edge.	4-87

Note that in this manual the term “overlap nonlinear effects” is used to refer to the PAGE TURN, ROLL, CYLINDER and SPHERE effects.

WAVE Settings

This provides a wavy effect on the image.

In group 1 of the NONLINEAR menu, press F3 (WAVE) to display the WAVE menu.



Function key indications in the WAVE menu

The following are some of the operations carried out in this menu.

Toggling the wave effect on and off – F1 (WAVE)

Press F1 (WAVE).
When this is on, the following settings are enabled.

Selecting the wave mode – F2 (MODE)

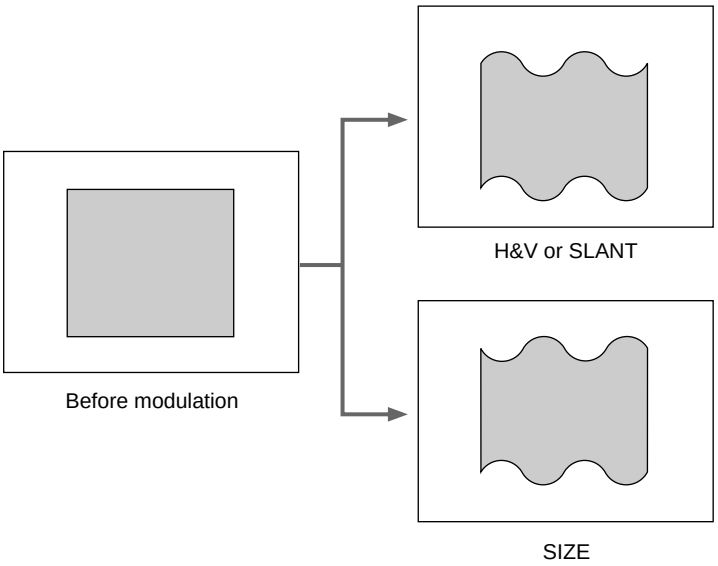
Press F2 (MODE), to select either "H&V", "SLANT", or "SIZE".

"H & V": The wavy effect is applied either horizontally or vertically or both simultaneously.

"SLANT": The wavy effect is applied in a specified direction. In this case it can only be applied in one direction at a time.

"SIZE": The wavy effect is applied to the size in a specified direction. In this case it can only be applied in one direction at a time.

(See the figure on next page.)



Stopping the wave motion – F3 (LOCK)

Set F3 (LOCK) to “ON” to stop the wave motion. Press it again to restart movement.

Restricting the wavy modulation to a particular part of the image – F4 (RANGE)

Set F4 (RANGE) to “ON”.
This restricts the wavy modulation to the current setting of the range.

For details of the range setting see “Setting the wave range” (on page 4-50).

Adjusting the wave pattern horizontally – F7 (H MOD)

Use the following procedure.

1 Press F7 (H MOD).

2 Adjust the following parameters, which depend on the setting of F2 (MODE).

When F2 (MODE) is "H&V":

Knob	Parameter	Setting
1	H Mod Amp	Set direction and amplitude of the waves (0.00 to 100.00)
2	H Mod Freq	Set degree of fineness of the waves (0.00 to 100.00)
3	H Mod Offset (when F3 is "ON")	Set phase offset and direction of the waves (–16.00 to +16.00)
	H Mod Speed (when F3 is "OFF")	Set direction and speed of wave movement (–100.00 to +100.00)

When F2 (MODE) is "SLANT" or "SIZE":

Knob	Parameter	Setting
1	H Mod Amp	Set direction and amplitude of the waves (0.00 to 100.00)
2	H Mod Freq	Set degree of fineness of the waves (0.00 to 100.00)
3	H Mod Offset (when F3 is "ON")	Set phase offset and direction of the waves (–16.00 to +16.00)
	H Mod Speed (when F3 is "OFF")	Set direction and speed of wave movement (–100.00 to +100.00)
4	Slant Angle	Set orientation of wave rotation (–8.00 to +8.00)

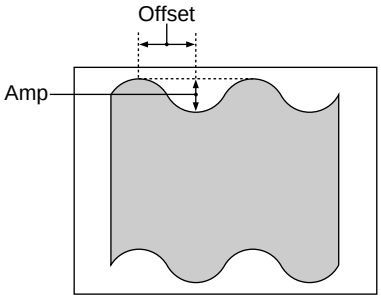
Adjusting the wave pattern vertically (when “H&V” is selected only) – F8 (V MOD)

Use the following procedure.

1 Press F8 (V MOD).

2 Adjust the following parameters.

Knob	Parameter	Setting
1	V Mod Amp	Set direction and amplitude of the waves (0.00 to 100.00)
2	V Mod Freq	Set degree of fineness of the waves (0.00 to 100.00)
3	V Mod Offset (when F3 is “ON”)	Set phase offset and direction of the waves (–16.00 to +16.00)
	V Mod Speed (when F3 is “OFF”)	Set direction and speed of wave movement (–100.00 to +100.00)



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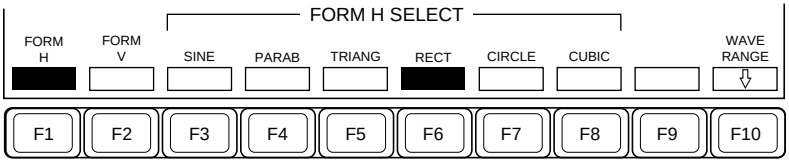
Selecting the waveform – F9 (WAVE FORM)

Use the following procedure.

1 Press F9 (WAVE FORM).

The WAVE FORM menu appears.



Function key indications in the WAVE FORM menu

2 When “H & V” is selected as the wave mode, press either of F1 (FORM H) and F2 (FORM V).
(When F2 (MODE) is set to “SLANT” or “SIZE”, this operation is not required.)
F1 (FORM H): horizontal waveform
F2 (FORM V): vertical waveform

3 Press one of F3 (SINE) to F8 (CUBIC) to select the waveform.
F3 (SINE): sine wave
F4 (PARAB): parabola
F5 (TRIANG): triangular wave
F6 (RECT): square wave
F7 (CIRCLE): circle
F8 (CUBIC): cubic polynomial

4 Adjust the following parameters.
When “H & V” is selected as the wave mode:

Knob	Parameter	Setting
1	H	Set degree of randomness horizontally (0.00 to 100.00)
2	V	Set degree of randomness vertically (0.00 to 100.00)
3	All	Set degree of randomness horizontally and vertically

When “SLANT” or “SIZE” is selected as the wave mode:

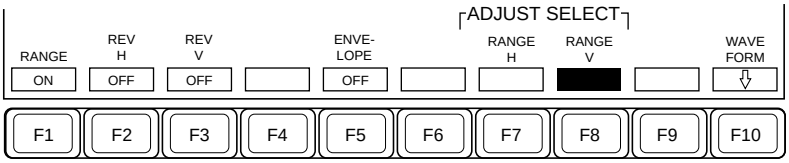
Knob	Parameter	Setting
1	Random	Set degree to which waveform is random (0.00 to 100.00)

Setting the wave range – F10 (WAVE RANGE)

Use the following procedure.

1 Press F10 (WAVE RANGE).

The WAVE RANGE menu appears.



Function key indications in the WAVE RANGE menu

2 Set F1 (RANGE) to “ON”.

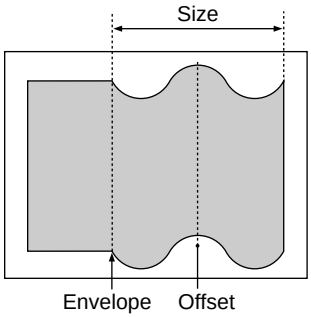
3 To adjust the horizontal range of the wave effect, press F7 (RANGE H).

4 Adjust the following parameters.

Knob	Parameter	Setting
1	H Size	Set extent of range (0.00 to 100.00)
2	H Offset	Set center of range (–8.00 to +8.00)

5 To adjust the smoothness of the boundary of the modulated portion, set F5 (ENVELOPE) to “ON”, then adjust the following parameter.

Knob	Parameter	Setting
3	Envelope	Set smoothness of the boundary portion (0.00 to 100.00)



6 When F2 (MODE) is set to “H&V”, press F8 (RANGE V), and adjust the vertical range of the wave effect as required.

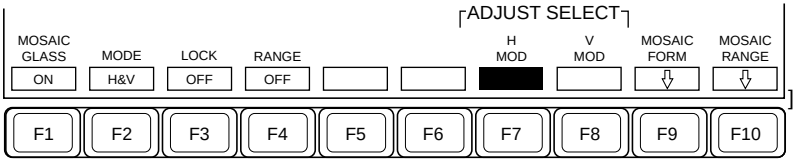
The parameter settings are the same as in steps **4** and **5** above.

7 To invert the sense of the range, so that the wave effect applies outside rather than inside, set F2 (REV H) or F3 (REV V) to “ON”.

MOSAIC GLASS Settings

This provides a longitudinal wavy effect on the image.

In group 1 of the NONLINEAR menu, press F4 (MOSAIC GLASS) to display the MOSAIC GLASS menu.



Function key indications in the MOSAIC GLASS menu

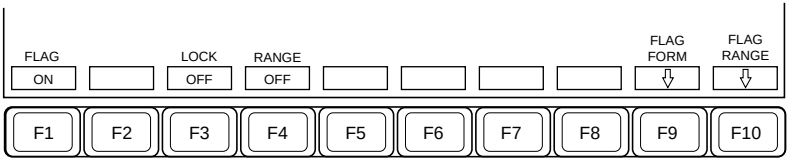
The items shown in this menu, and the function key operations are the same as in the WAVE menu. In this case, however, the wave mode has no “SIZE” option.

For details see the section “WAVE Settings” (page 4-45).

FLAG Settings

This provides the effect of a waving flag.

In group 1 of the NONLINEAR menu, press F5 (FLAG) to display the FLAG menu.



Function key indications in the FLAG menu

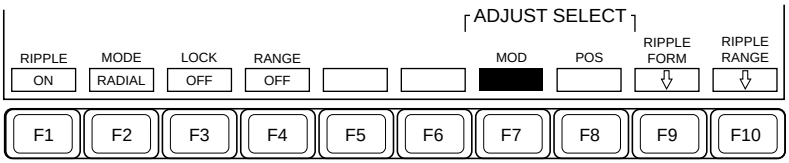
The items shown in this menu, and the function key operations are the same as in the WAVE menu, except that F2 (MODE), F7 (H MOD) and F8 (V MOD) do not appear.

For details see the section “WAVE Settings” (page 4-45).

RIPPLE Settings

This effect creates ripples on the image.

In group 1 of the NONLINEAR menu, press F6 (RIPPLE) to display the RIPPLE menu.



Function key indications in the RIPPLE menu

The following are some of the operations carried out in this menu.

For details of the functions provided by F3 (LOCK), F4 (RANGE), F9 (RIPPLE FORM) and F10 (RIPPLE RANGE), see the section "WAVE settings" (page 4-45).

RIPPLE FORM menu and RIPPLE RANGE menu

Operations in the RIPPLE FORM menu selected by pressing F9 in the RIPPLE menu are basically the same as in the WAVE FORM menu selected by pressing F9 in the WAVE menu. In the RIPPLE FORM menu, however, the "PLUS ONLY" function is assigned to F1. When F1 is set to "ON", the modulation is applied only in the positive direction (in the direction of expanding the image).

Toggling the ripple effect on and off – F1 (RIPPLE)

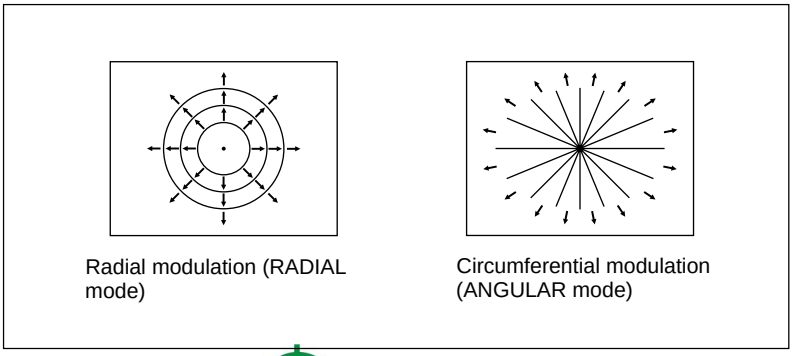
Press F1 (RIPPLE).
When this is set to "ON", the following settings are enabled.

Selecting the ripple mode – F2 (MODE)

Press F2 (MODE), to select either of the following.

“RADIAL”: Points at the same distance from the center of the ripple move in the same way.

“ANGULR”: Points at the same angle from the center of the ripple move in the same way.



Radial modulation (RADIAL mode)

Circumferential modulation (ANGULAR mode)

Modulation modes and directions

Adjusting the size and other properties of the ripple pattern – F7 (MOD)

Use the following procedure.

1 Press F7 (MOD).

2 Adjust the following parameters.

Knob	Parameter	Setting
1	Mod Amp	Set direction and amplitude of the ripples (0.00 to 100.00)
2	Mod Freq	Set degree of fineness of the ripples (0.00 to 100.00)
3	Mod Offset (when F3 is “ON”)	Set phase offset and direction of the ripples (–8.00 to +8.00)
	Mod Speed (when F3 is “OFF”)	Set direction and speed of ripple movement (–100.00 to +100.00)

Adjusting the position of the center of the ripples – F8 (POS)

Use the following procedure.

1 Press F8 (POS).

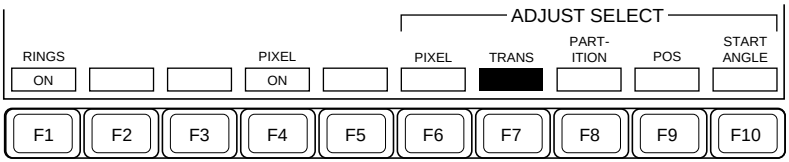
2 Adjust the following parameters.

Knob	Parameter	Setting
1	X	Set x-coordinate of center position (–4.00 to +4.00)
2	Y	Set y-coordinate of center position (–3.00 to +3.00)

RINGS Settings

This effect breaks the picture up into rings, and moves them in a selected direction while turning.

In group 1 of the NONLINEAR menu, press F7 (RINGS) to display the RINGS menu.



Function key indications in the RINGS menu

The following are some of the operations carried out in this menu.

Applying the rings effect – F1 (RINGS) and F7 (TRANS) to F10 (START ANGLE)

Use the following procedure.

1 Set F1 (RINGS) to “ON”.

(Continued)

2 To adjust the nature of the transition, press F7 (TRANS), then adjust the following parameters.

Knob	Parameter	Setting
1	Trans	Set degree of transition (0.00 to 100.00)
2	Random	Set degree to which distances moved by different pieces of image are randomized (0.00 to 100.00)
3	Spiral	Set degree of movement in the angular direction as the transition proceeds (–100.00 to +100.00)

3 To adjust the way in which the pieces break up, press F8 (PARTITION), then adjust the following parameters.

Knob	Parameter	Setting
1	Width	Set width of partition (0.00 to 100.00)
2	Random	Set degree to which partition width is random (0.00 to 100.00)

4 To adjust the position of the center of the rings, press F9 (POS), then adjust the following parameters.

Knob	Parameter	Setting
1	X	Set x-coordinate of center position (–5.00 to +5.00)
2	Y	Set y-coordinate of center position (–4.00 to +4.00)

5 To set the starting angle for the effect, press F10 (START ANGLE), then adjust the following parameter.

Knob	Parameter	Setting
1	Angle	Set starting angle for effect (–8.00 to +8.00)

Breaking the image into pixels – F4 (PIXEL) and F6 (PIXEL)

Use the following procedure.

1 Set F4 (PIXEL) to “ON”.

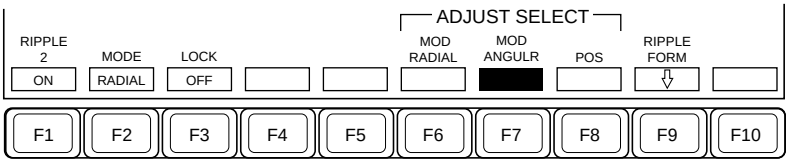
2 Press F6 (PIXEL), then adjust the following parameters.

Knob	Parameter	Setting
1	Density	Set degree to which periphery of image disappears (0.00 to 100.00)
2	Random	Set degree of jaggedness of edges of individual pieces (0.00 to 100.00)

RIPPLE2 Settings

RIPPLE2 provides a rippling effect similar to RIPPLE. There are two variants of the modulation (RADIAL and ANGULAR), and you can apply the two simultaneously.

In group 1 of the NONLINEAR menu, select F8 (RIPPLE2) to display the RIPPLE2 menu.



Function key indications in the RIPPLE2 menu

The following are some of the operations carried out in this menu.
For details of the function of F8 (POS), see the section "RIPPLE Settings" (page 4-53).

Applying the RIPPLE2 effect – F1 (RIPPLE2), F2 (MODE), F6 (MOD RADIAL) and F7 (MOD ANGULR)

Use the following procedure.

1 Set F1 (RIPPLE2) to "ON".

2 Press F2 (MODE), to select the modulation mode.

For "RADIAL" and "ANGULR", see page 4-54.

Selecting "BOTH" applies both RADIAL and ANGULAR ripples simultaneously.

Pressing F2 cycles through the settings in the following order:
RADIAL → ANGULAR → BOTH.

(Continued)

3 To adjust the RADIAL modulation press F6 (MOD RADIAL), and to adjust the ANGULAR modulation press F7 (MOD ANGULR), then adjust the following parameters.

Knob	Parameter	Setting
1	Mod Amp	Set direction and amplitude of the ripples (0.00 to 100.00)
2	Mod Freq	Set degree of fineness of the ripples (0.00 to 100.00)
3	Mod Offset (when F3 is "ON")	Set phase offset and direction of the ripples (–16.00 to +16.00)
	Mod Speed (when F3 is "OFF")	Set direction and speed of ripple movement (–100.00 to +100.00)

Stopping the ripple movement – F3 (LOCK)

Set F3 (LOCK) to "ON". Pressing F3 toggles between stationary and moving ripples.

Selecting the form of the ripples – F9 (RIPPLE FORM)

Use the following procedure.

1 Press F9 (RIPPLE FORM).

The RIPPLE2 FORM menu appears.

2 To adjust the RADIAL modulation press F2 (FORM RADIAL), and to adjust the ANGULAR modulation press F3 (FORM ANGULR), then select F4 (SINE) to F9 (CUBIC) to select the ripple waveform.

For details of the waveform types and parameter settings, see page 4-49.

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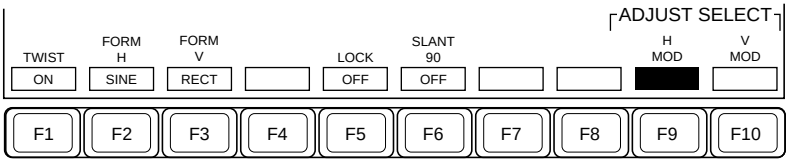
TWIST Settings

This applies a twisting effect to the image.

In group 1 of the NONLINEAR menu, select F9 (TWIST) to display the TWIST menu.



Function key indications in the TWIST menu

The following are some of the operations carried out in this menu.

Applying the twist effect – F1 (TWIST), F9 (H MOD) and F10 (V MOD)

Use the following procedure.

1 Set F1 (TWIST) to “ON”.

2 To adjust the horizontal modulation press F9 (H MOD), and to adjust the vertical modulation press F10 (V MOD), then adjust the following parameters.

Knob	Parameter	Setting
1	Mod Amp	Set direction and amplitude of the waves (0.00 to 100.00)
2	Mod Freq	Set degree of fineness of the waves (0.00 to 100.00)
3	Mod Offset (when F5 is “ON”)	Set phase offset and direction of the waves (–16.00 to +16.00)
	Mod Speed (when F5 is “OFF”)	Set direction and speed of wave movement (–100.00 to +100.00)

Selecting the waveform – F2 (FORM H) and F3 (FORM V)

To select the modulation waveform in the horizontal direction, press F2 (FORM H), and to select the modulation waveform in the vertical direction, press F3 (FORM V).

Pressing either F2 or F3 cycles through the following possibilities:

SINE (sine wave) → PARAB (parabola) → TRIANG (triangular wave) → RECT (square wave) → CIRCLE (circle) → CUBIC (cubic polynomial)

Stopping the waves – F5 (LOCK)

Set F5 (LOCK) to “ON”. Pressing F5 toggles wave motion on and off.

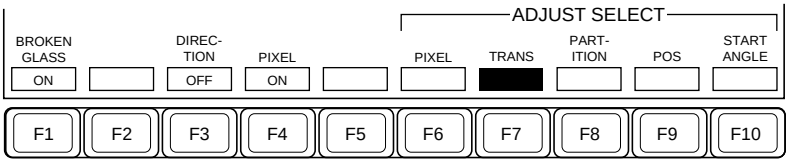
Rotating the direction of twisting through 90 degrees – F6 (SLANT 90)

Set F6 (SLANT 90) to “ON”.

BROKEN GLASS Settings

This provides the effect of the picture shattering into fragments.

In group 2 of the NONLINEAR menu, press F3 (BROKEN GLASS) to display the BROKEN GLASS menu.



Function key indications in the BROKEN GLASS menu

Except for F3 (DIRECTION), the items shown in this menu, and the function key operations are the same as in the RINGS menu.

For details of operation other than F3 (DIRECTION) see the section "RINGS Settings" (page 4-55).

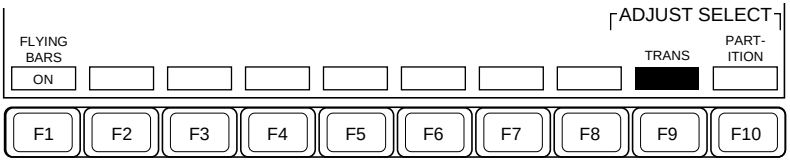
Fixing the direction of scattering – F3 (DIRECTION)

Set F3 (DIRECTION) to "ON".
The direction of scattering of the fragmented image is fixed by the F10 (START ANGLE) parameter(s).

FLYING BARS Settings

This splits the picture up, and makes it peel apart in two strips.

In group 2 of the NONLINEAR menu, press F4 (FLYING BARS) to display the FLYING BARS menu.



Function key indications in the FLYING BARS menu

The following are some of the operations carried out in this menu.

Applying the flying bars effect

Use the following procedure.

1 Set F1 (FLYING BARS) to “ON”.

2 To adjust the nature of the transition, press F9 (TRANS), then adjust the following parameters.

Knob	Parameter	Setting
1	Trans	Set degree of transition (0.00 to 100.00)
2	Random	Set degree to which distances moved by different pieces of image are randomized (0.00 to 100.00)
3	Angle	Set direction of movement (–8.00 to +8.00)

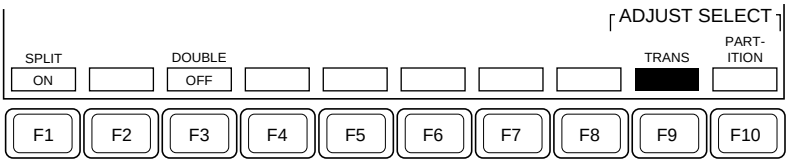
3 To adjust the way in which the pieces break up, press F10 (PARTITION), then adjust the following parameters.

Knob	Parameter	Setting
1	Width	Set width of partition (0.00 to 100.00)
2	Random	Set degree to which partition width is random (0.00 to 100.00)
3	Angle	Set direction of partition (–8.00 to +8.00)

SPLIT Settings

This effect splits the picture up horizontally and vertically.

In group 2 of the NONLINEAR menu, press F5 (SPLIT) to display the SPLIT menu.



Function key indications in the SPLIT menu

The following are some of the operations carried out in this menu.

Applying the split effect – F1 (SPLIT), F9 (TRANS) and F10 (PARTITION)

Use the following procedure.

1 Set F1 (SPLIT) to “ON”.

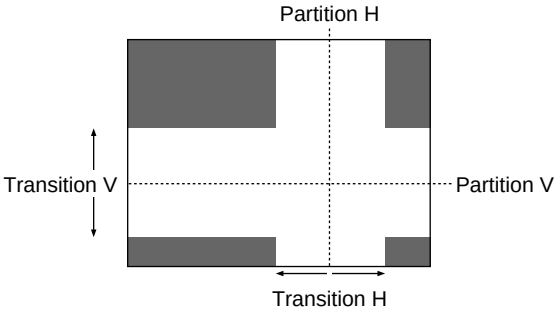
2 To adjust the nature of the transition, press F9 (TRANS), then adjust the following parameters.

Knob	Parameter	Setting
1	H	Set degree of splitting horizontally (0.00 to 100.00)
2	V	Set degree of splitting vertically (0.00 to 100.00)
3	All	Set degree of splitting horizontally and vertically

(Continued)

3 To adjust the positions of the partitions, press F10 (PARTITION), then adjust the following parameters.

Knob	Parameter	Setting
1	H	Set horizontal position of vertical partition (–4.00 to +4.00)
2	V	Set vertical position of horizontal partition (–3.00 to +3.00)



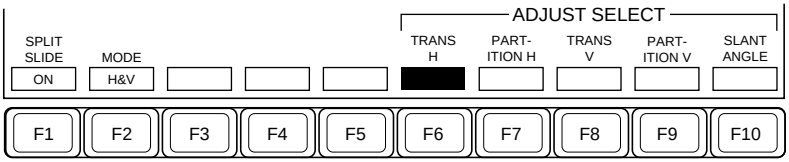
Filling the split with the original picture – F3 (DOUBLE)

To insert the video image being split also in the opening gap, press F3 (DOUBLE).

SPLIT SLIDE Settings

This effect breaks the picture into strips moving apart alternately.

In group 2 of the NONLINEAR menu, press F6 (SPLIT SLIDE) to display the SPLIT SLIDE menu.



Function key indications in the SPLIT SLIDE menu

The following are some of the operations carried out in this menu.

Toggling the split slide effect on and off – F1 (SPLIT SLIDE)

Press F1 (SPLIT SLIDE).
When this is set to “ON”, the following settings are enabled.

Selecting the split slide mode – F2 (MODE)

Press F2 (MODE), to select either “H & V” or “SLANT”.

“H & V”: The image is split horizontally or vertically and slid in that direction. In this mode it is also possible to split the image simultaneously both horizontally and vertically.

“SLANT”: The image is split and slid in one specified direction.

Adjusting the manner of sliding – F6 (TRANS H) to F10 (SLANT ANGLE)

Use the following procedure.

1 To adjust the nature of the transition in the horizontal direction, press F6 (TRANS H), then adjust the following parameters.

Knob	Parameter	Setting
1	Trans	Set degree of transition (0.00 to 100.00)
2	Random	Set degree to which distances moved by different pieces of image are randomized (0.00 to 100.00)
3	Skew	Set degree to which slide is skewed (0.00 to 100.00)

(Continued)

2 To adjust the partition in the horizontal direction, press F7 (PARTITION H), then adjust the following parameters.

Knob	Parameter	Setting
1	Width	Set width of partition (0.00 to 100.00)
2	Pos	Set position of partition (–5.00 to +5.00)

3 When F2 (MODE) is set to “H & V”, press F8 (TRANS V) or F9 (PARTITION V), then adjust the parameters relating to the vertical transition and partition.
The parameter settings are the same as in steps **1** and **2**.

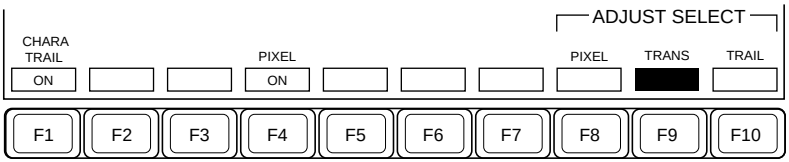
4 When F2 (MODE) is set to “SLANT”, press F10 (SLANT ANGLE), then adjust the following parameter.

Knob	Parameter	Setting
1	Angle	Set angle of the split (–8.00 to +8.00)

CHARACTER TRAIL Settings

This provides the effect of pulling out a “tail” from a peripheral part of the image.

In group 2 of the NONLINEAR menu, press F7 (CHARA TRAIL) to display the CHARACTER TRAIL menu.



Function key indications in the CHARACTER TRAIL menu

The following are some of the operations carried out in this menu.

Applying the character trail effect – F1 (CHARA TRAIL), F9 (TRANS) and F10 (TRAIL)

Use the following procedure.

1 Set F1 (CHARA TRAIL) to “ON”.

2 To adjust the nature of the transition, press F9 (TRANS), then adjust the following parameters.

Knob	Parameter	Setting
1	Trans	Set position of beginning of effect (–8.00 to +8.00)
2	Expn	Set degree of stretching (0.00 to 100.00)
3	Angle	Set angle of inclination of region of effect (–8.00 to +8.00)

3 To adjust the pulling out of the tail, press F10 (TRAIL), then adjust the following parameter.

Knob	Parameter	Setting
3	Angle	Set direction of tail-pulling (–100 to +100)

Breaking the image into pixels – F4 (PIXEL) and F8 (PIXEL)

Use the following procedure.

1 Set F4 (PIXEL) to “ON”.

2 Press F8 (PIXEL), then adjust the following parameters.

Knob	Parameter	Setting
1	Density	Set degree to which image disappears (0.00 to 100.00)
2	Random	Set manner of pulling out tail and amount of stardust (0.00 to 100.00)

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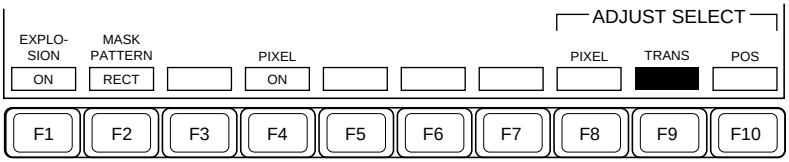
EXPLOSION Settings

EXPLOSION provides an effect of the image expanding and breaking into pieces.

In group 2 of the NONLINEAR menu, select F8 (EXPLOSION) to display the EXPLOSION menu.



Function key indications in the EXPLOSION menu

The following are some of the operations carried out in this menu.

For details of the functions provided by F4 (PIXEL) and F8 (PIXEL), see the previous section "CHARACTER TRAIL Settings".

Applying an explosion effect – F1 (EXPLOSION), F2 (MASK PATTERN), F9 (TRANS) and F10 (POS)

Use the following procedure.

1 Set F1 (EXPLOSION) to "ON".

2 Press F2 (MASK PATTERN) to select the shape of the mask pattern.

Pressing F2 cycles through the following possibilities:

CIRCLE (circle) → RECT (rectangle) → STAR (star) → HEART (heart) → ELLPS (ellipse)

(Continued)

3 To adjust the nature of the transition, press F9 (TRANS), then adjust the following parameters.

Knob	Parameter	Setting
1	Trans	Set amount of pixel movement (0.00 to 100.00)
2	Curve	Set amount of pixel movement at the periphery of the image (0.00 to 100.00)
3	Spiral (when "CIRCLE" is selected)	Set degree of curvature of path of transition (–100.00 to +100.00)
	Aspect (when other than "CIRCLE" is selected)	Set aspect ratio of mask pattern (–100.00 to +100.00)

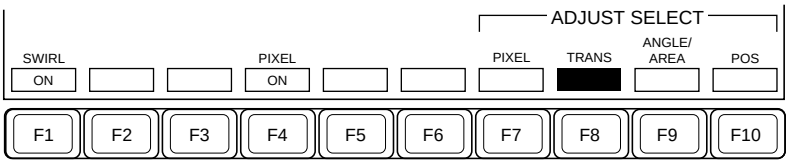
4 To adjust the position of the center of the mask pattern, press F10 (POS), then adjust the following parameters.

Knob	Parameter	Setting
1	X	Set x-coordinate of center of pattern (–5.00 to +5.00)
2	Y	Set y-coordinate of center of pattern (–4.00 to +4.00)

SWIRL Settings

SWIRL applies a swirling effect to the image.

In group 2 of the NONLINEAR menu, select F9 (SWIRL) to display the SWIRL menu.



Function key indications in the SWIRL menu

The following are some of the operations carried out in this menu.

For details of the functions provided by F4 (PIXEL) and F7 (PIXEL), see the section "CHARACTER TRAIL Settings" (page 4-67).

Applying a swirl effect – F1 (SWIRL)

Use the following procedure.

1 Set F1 (SWIRL) to "ON".

2 To adjust the nature of the transition, press F8 (TRANS), then adjust the following parameters.

Knob	Parameter	Setting
1	Trans	Set degree of winding (0.00 to 100.00)

3 To adjust the nature of the swirling, press F9 (ANGLE/AREA), then adjust the following parameters.

Knob	Parameter	Setting
1	Center	Set degree of turning at center (–8.00 to +8.00)
2	Outer	Set degree of turning outside "Area" (–8.00 to +8.00)
3	Area	Set "Area" of swirl (0.00 to 100.00)

(Continued)

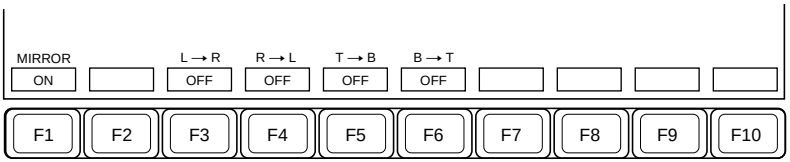
4 To adjust the position of the center of the swirl, press F10 (POS), then adjust the following parameters.

Knob	Parameter	Setting
1	X	Set x-coordinate of center of the swirl (–4.00 to +4.00)
2	Y	Set y-coordinate of center of the swirl (–3.00 to +3.00)

MIRROR Settings

This reflects half of the image in a horizontal or vertical mirror.

In group 3 of the NONLINEAR menu, press F3 (MIRROR) to display the MIRROR menu.



Function key indications in the MIRROR menu

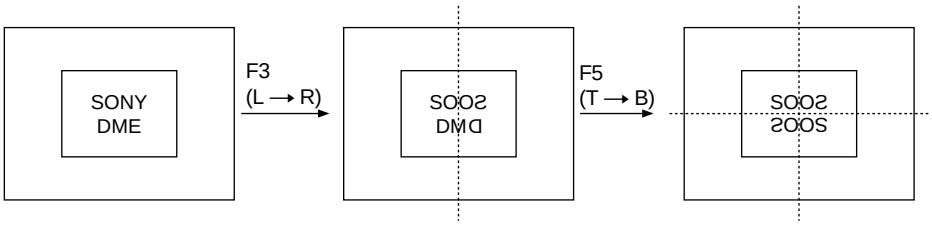
The following are some of the operations carried out in this menu.

Applying the mirror effect – F1 (MIRROR)

Use the following procedure.

1 Set F1 (MIRROR) to “ON”.

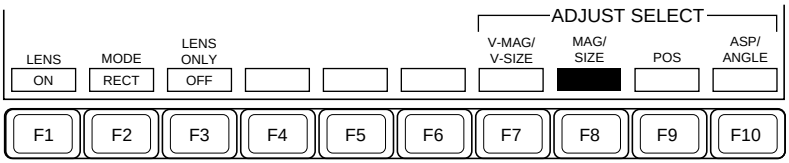
2 Select the mirror effect using F3 to F6. Two of these may be on simultaneously.
- F3 (L → R): reflect left half on right.
- F4 (R → L): reflect right half on left.
- F5 (T → B): reflect top half on bottom.
- F6 (B → T): reflect bottom half on top.



LENS Settings

This provides the effect of seeing part of the image through a lens.

In group 3 of the NONLINEAR menu, press F4 (LENS) to display the LENS menu.



Function key indications in the LENS menu

The following are some of the operations carried out in this menu.

Applying the lens effect – F1 (LENS), F2 (MODE), F7 (V-MAG/V-SIZE) to F10 (ASP/ANGLE)

Use the following procedure.

1 Set F1 (LENS) to “ON”.

2 Press F2 (MODE) to select the shape of the lens.

Pressing F2 cycles through the following possibilities:
CIRCLE: circle
RECT: rectangle
STAR: star
HEART: heart
BAR: strip
CROSS: cross

(Continued)

3 To adjust the magnification and size of the lens, press F8 (MAG/SIZE), then adjust the following parameters.
When F2 (MODE) is set to “CROSS”, these are the settings for the horizontal direction.

Knob	Parameter	Setting
1	Mag	Set magnification of lens (–100.00 to +100.00)
2	Curve	Set curvature (–100.00 to +100.00)
3	Size	Set lens size (0.00 to 100.00)

4 When F2 (MODE) is set to “CROSS”, press F7 (VMAG/VSIZE), then set the magnification and size in the vertical direction.

The parameter settings are the same as in step **3**.

5 To adjust the position of the center of the lens, press F9 (POS), then adjust the following parameters. However, when F2 (MODE) is set to “BAR”, only the “X” parameter appears.

Knob	Parameter	Setting
1	X	Set x-coordinate of center of lens (–5.00 to +5.00)
2	Y	Set y-coordinate of center of lens (–4.00 to +4.00)

6 To adjust the aspect ratio and inclination angle of the lens, press F10 (ASP/ANGLE), then adjust the following parameters.
However, when F2 (MODE) is set to “CROSS”, these settings do not appear. When F2 (MODE) is set to “BAR”, only the “Angle” parameter appears.

Knob	Parameter	Setting
1	Aspect	Set aspect ratio (–100.00 to +100.00)
2	Angle	Set inclination of lens (–8.00 to +8.00)

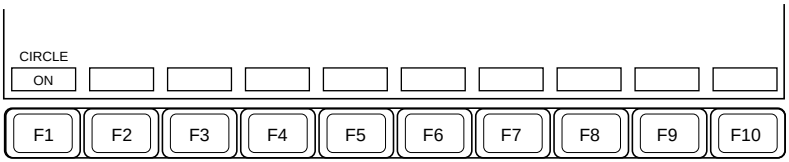
Making only the lens portion visible – F3 (LENS ONLY)

Set F3 (LENS ONLY) to “ON”.
This crops the part of the picture outside the area of the lens.

CIRCLE Settings

This makes the image circular.

In group 3 of the NONLINEAR menu, press F5 (CIRCLE) to display the CIRCLE menu.



Function key indications in the CIRCLE menu

The following operation is carried out in this menu.

Applying the circle effect

Use the following procedure.

1 Set F1 (CIRCLE) to “ON”.

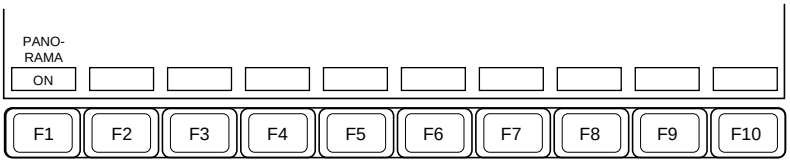
2 Adjust the following parameter.

Knob	Parameter	Setting
1	Radius	Set the radius of the circle (0.00 to 100.00)

PANORAMA Settings

This provides an effect of enhanced perspective by curving the upper and lower edges of the image.

In group 3 of the NONLINEAR menu, press F6 (PANORAMA) to display the PANORAMA menu.



Function key indications in the PANORAMA menu

The following operation is carried out in this menu.

Applying the panorama effect

Use the following procedure.

1 Press F1 (PANORAMA).

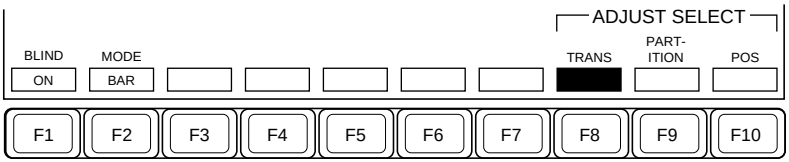
2 Adjust the following parameters.

Knob	Parameter	Setting
1	H Curve	Set horizontal curvature (–100.00 to +100.00)
2	V Curve	Set vertical curvature (–100.00 to +100.00)
3	X Pos	Set x-coordinate of center of curvature (–4.00 to +4.00)
4	Y Pos	Set y-coordinate of center of curvature (–3.00 to +3.00)

BLIND Settings

The BLIND effect divides the image into bars or wedges, and rotates the pieces, providing an effect suggestive of the vanes of a blind turning.

In group 3 of the NONLINEAR menu, select F8 (BLIND) to display the BLIND menu.



Function key indications in the BLIND menu

The following operation is carried out in this menu.

Applying the blind effect

Use the following procedure.

1 Set F1 (BLIND) to “ON”.

2 Press F2 (MODE) to select “BAR” or “WEDGE”.

3 To adjust the nature of the transition, press F8 (TRANS), then adjust the following parameters.

Knob	Parameter	Setting
1	Rot	Set number of rotations of pieces (–8.00 to +8.00)
2	Pers	Set degree of perspective (0.00 to +100.00)

(Continued)

4 To adjust the way in which the pieces break up, press F9 (PARTITION), then adjust the following parameters.

When you selected "BAR" in step 2:

Knob	Parameter	Setting
1	Width	Set width of individual bars (0.00 to 100.00)
2	Pos	Set position of divisions (–5.00 to +5.00)
3	Angle	Set direction of divisions (–8.00 to +8.00)

When you selected "WEDGE" in step 2:

Knob	Parameter	Setting
1	No.	Set width of individual wedges (0.00 to 100.00)
2	Phase	Set position of divisions (–8.00 to +8.00)

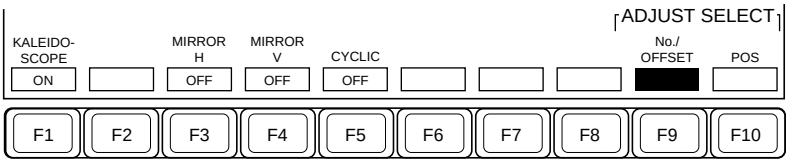
5 When you selected "WEDGE" in step **2**, press F10 (POS), then adjust the following parameters.

Knob	Parameter	Setting
1	X	Set x-coordinate of center of rotation (–5.00 to +5.00)
2	Y	Set y-coordinate of center of rotation (–4.00 to +4.00)

KALEIDOSCOPE Settings

The KALEIDOSCOPE effect provides a range of kaleidoscope-like effects on the image.

In group 3 of the NONLINEAR menu, select F9 (KALEIDOSCOPE) to display the KALEIDOSCOPE menu.



Function key indications in the KALEIDOSCOPE menu

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The following are some of the operations carried out in this menu.

Applying the kaleidoscope effect – F1 (KALEIDOSCOPE) and F9 (No./OFFSET)

Use the following procedure.

1 Set F1 (KALEIDOSCOPE) to “ON”.

2 Press F9 (No./OFFSET), then adjust the following parameters.

Knob	Parameter	Setting
1	No.	Set number of pieces (0.00 to 100.00)
2	Phase	Set angle of divisions (–8.00 to +8.00)
3	H Offset	Set horizontal offset (–4.00 to +4.00)
4	V Offset	Set vertical offset (–3.00 to +3.00)

Making mirror reflections of the kaleidoscope image – F3 (MIRROR H), F4 (MIRROR V) and F10 (POS)

Use the following procedure.

1 For a horizontal reflection set F3 (MIRROR H) to “ON”.

2 For a vertical reflection set F4 (MIRROR V) to “ON”.

3 Press F10 (POS), then adjust the following parameters.

Knob	Parameter	Setting
1	X	Set x-coordinate of reflection position (0.00 to 4.00)
2	Y	Set y-coordinate of reflection position (0.00 to 3.00)

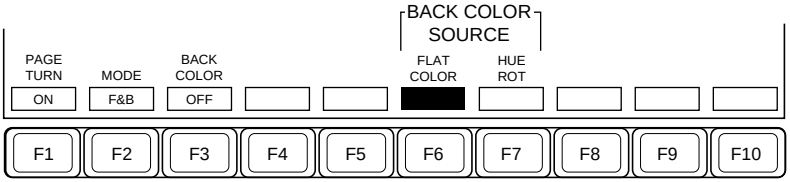
Cyclically repeating original images and mirror images – F5 (CYCLIC)

Set F5 (CYCLIC) to “ON”.

PAGE TURN Settings

This provides the effect of a page turning.

In group 4 of the NONLINEAR menu, press F3 (PAGE TURN) to display the PAGE TURN menu.



Function key indications in the PAGE TURN menu

The following are some of the operations carried out in this menu.

Applying the pageturn effect – F1 (PAGE TURN)

Use the following procedure.

1 Set F1 (PAGE TURN) to “ON”.

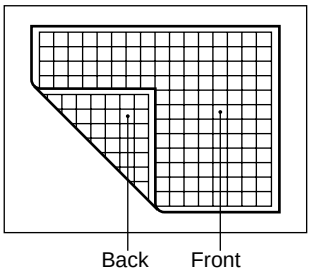
2 Adjust the following parameters.

Knob	Parameter	Setting
1	Radius	Set radius of turning portion (0.00 to 100.00)
2	Offset	Set amount of turning (–100.00 to +100.00)
3	Angle	Set turning angle (–8.00 to +8.00)

Selecting the front or back of the turning page – F2 (MODE)

Press F2 (MODE), to select one of the following.

"F & B": Output both the front and the back of the page.
"FRONT": Output the front of the page only.
"BACK": Output the back of the page only.



Selecting the signal to be inserted in the back of the page – F3 (BACK COLOR), F6 (FLAT COLOR) and F7 (HUE ROT)

When "MODE" is set to "F & B" or "BACK", you can insert a different signal in the back side (see illustration above).
Use the following procedure.

1 Set F3 (BACK COLOR) to "ON".

2 Press F6 (FLAT COLOR) or F7 (HUE ROT), to select the signal to be inserted in the back of the page.

The significance of the parameters and their setting ranges are the same as for a background. For details, see the section "BKGD Settings" (page 4-7).

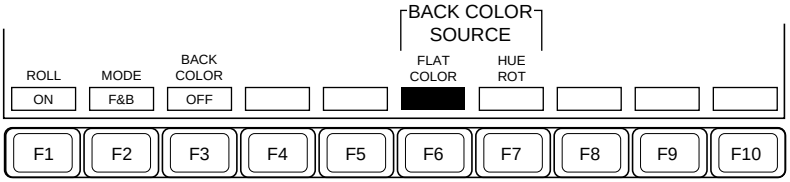
Notes

- The image on the back of the page is inverted. In order to make it not inverted, set the INPUT INVERT function *(see page 5-6)* to "ON".
- It is not possible to use the functions in the PICTURE MODIFY menu *(page 4-26)* or VIDEO MODIFY menu *(page 4-32)* to modify the back of the page.
- It is not possible to apply a border to the back of the page.

ROLL Settings

This provides the effect of rolling the image up like a scroll.

In group 4 of the NONLINEAR menu, press F4 (ROLL) to display the ROLL menu.



Function key indications in the ROLL menu

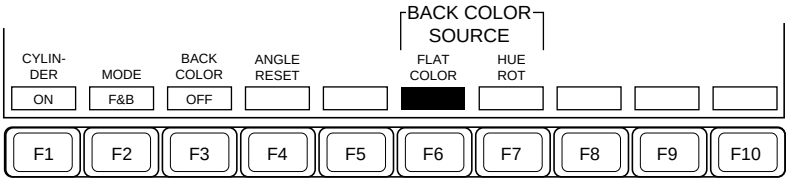
The items shown in this menu, and the function key operations are the same as in the PAGE TURN menu.

For details see the section "PAGE TURN Settings" (page 4-80).

CYLINDER Settings

This provides the effect of wrapping the image around a cylinder.

In group 4 of the NONLINEAR menu, press F5 (CYLNDER) to display the CYLINDER menu.



Function key indications in the CYLINDER menu

The following are some of the operations carried out in this menu.

Applying the cylinder effect – F1 (CYLINDER)

Use the following procedure.

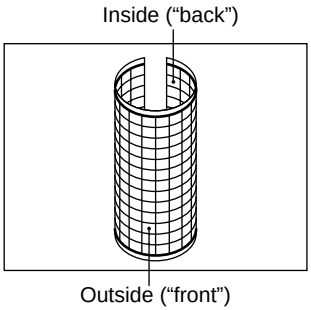
1 Set F1 (CYLINDER) to “ON”.

2 Adjust the following parameter.

Knob	Parameter	Setting
1	Radius	Set cylinder radius (0.00 to 100.00)
2	Min R	Set minimum radius of cylinder (0.00 to 100.00)
3	Offset	Set horizontal position at which image is wrapped around (–100.00 to +100.00)

Selecting the outside or inside of the cylinder – F2 (MODE)

Press F2 (MODE), to select one of the following.
“F & B”: Output both the outside and the inside of the cylinder.
“FRONT”: Output the outside of the cylinder only.
“BACK”: Output the inside of the cylinder only.



Note

When rotating a cylinder and showing the top and bottom open ends on the monitor, there are restrictions on the rotation angle.

Ensuring smooth unrolling of a cylinder – F4 (ANGLE RESET)

When unrolling a cylinder, with a rotation of the image applied about the x- or y-axis, computational limitations of the processor may cause a discontinuity as the radius of curvature increases, with the image suddenly jumping in the z-direction to the completely flat state. This problem can be avoided by using F4 (ANGLE RESET).

First, with the cylinder unrolled to just before the state where the discontinuity occurs, press F4 (ANGLE RESET), and create a keyframe. Then increase the radius again, and repeat the procedure as required. This makes it possible to obtain a completely smooth unrolling effect.

Selecting the signal to be inserted in the “back” (i.e. inside) of the cylinder – F3 (BACK COLOR), F6 (FLAT COLOR) and F7 (HUE ROT)

When “MODE” is set to “F & B” or “BACK”, you can insert a different signal in the “back” (i.e. inside) of the cylinder (see illustration above). Use the following procedure.

1 Set F3 (BACK COLOR) to “ON”.

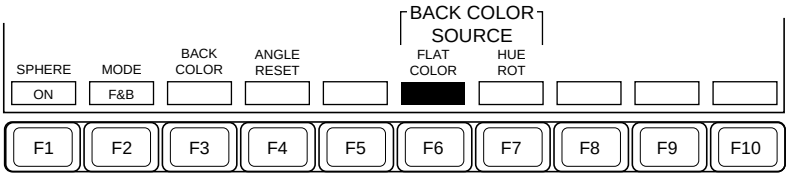
2 Press F6 (FLAT COLOR) or F7 (HUE ROT), to select the signal to be inserted in the back of the page.

For details of the settings, see the section “BKGD Settings” (page 4-7).

SPHERE Settings

This provides the effect of wrapping the image around a sphere.

In group 4 of the NONLINEAR menu, press F6 (SPHERE) to display the SPHERE menu.



Function key indications in the SPHERE menu

The items shown in this menu, and the function key operations are the same as in the CYLINDER menu.

For details see the section “CYLINDER Settings” (page 4-83).

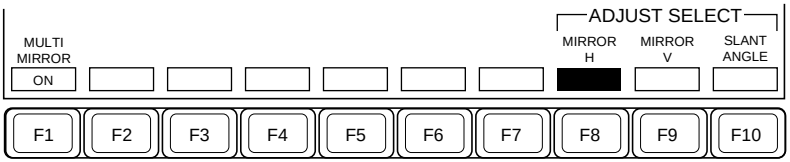
Note

When rotating a sphere, it is not possible to show the points corresponding to the poles.

MULTI MIRROR Settings

MULTI MIRROR provides the effect of reflecting the image in a pair of parallel mirrors (either horizontal or vertical or both) at right angles to the plane of the image, thus giving a repeated effect of alternately reflected sections of the image.

In group 4 of the NONLINEAR menu, select F8 (MULTI MIRROR) to display the MULTI MIRROR menu.



Function key indications in the MULTI MIRROR menu

The following operation is carried out in this menu.

Applying the “multi-mirror” effect

Use the following procedure.

1 Set F1 (MULTI MIRROR) to “ON”.

2 To adjust the mirrors horizontally, press F8 (MIRROR H), then adjust the following parameters.

Knob	Parameter	Setting
1	Interval	Set spacing between the two mirrors (width of strip) (0.00 to 10.00)
2	Pos	Set center position of the unreflected image (–4.00 to +4.00)
3	Offset	Set offset of the original image with mirrors held stationary (–4.00 to +4.00)

3 To adjust the mirrors vertically, press F9 (MIRROR V), then adjust the parameters.

The parameter settings are the same as in step **2**.

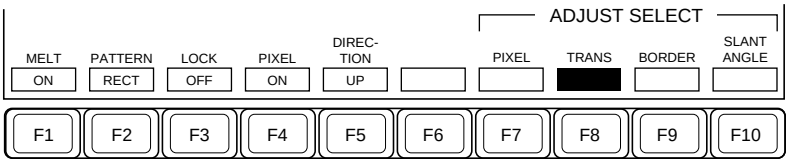
4 Press F10 (SLANT ANGLE), then adjust the following parameter.

Knob	Parameter	Setting
1	Angle	Set mirror direction (–8.00 to +8.00)

MELT Settings

MELT provides an effect on the image as though part of it were melting away.

In group 4 of the NONLINEAR menu, select F9 (MELT) to display the MELT menu.



Function key indications in the MELT menu

The following are some of the operations carried out in this menu.

Applying the melting effect – F1 (MELT), F3 (LOCK), and F8 (TRANS) to F10 (SLANT ANGLE)

Use the following procedure.

1 Set F1 (MELT) to “ON”.

2 To adjust the nature of the transition, press F8 (TRANS), then adjust the following parameters.

Knob	Parameter	Setting
1	Trans	Set degree of transition (0.00 to 100.00)
2	Curve	Set degree of stretching the image (0.00 to 100.00)
3	Random	Set degree to which the melted portion is jagged (0.00 to 100.00)

(Continued)

3 To fix the waves in the melting portion, set F3 (LOCK) to “ON”, and to let the waves move set F3 (LOCK) to “OFF”.

4 To adjust the waves in the melting portion, press F9 (BORDER), then adjust the following parameters.

Knob	Parameter	Setting
1	Amp	Set amplitude of the waves (0.00 to 100.00)
2	H Freq	Set degree of fineness of the waves (0.00 to 100.00)
3	Offset (when F3 is “ON”)	Set phase offset of the waves (–16.00 to +16.00)
	Speed (when F3 is “OFF”)	Set direction and speed of wave movement (–100.00 to +100.00)

5 To adjust the inclination of the melting portion, press F10 (SLANT ANGLE), then adjust the following parameter.

Knob	Parameter	Setting
1	Angle	Set boundary direction (–100.00 to +100.00)

Adjusting the shape of the portion beginning to melt – F2 (PATTERN)

Press F2 (PATTERN) to select the waveform.
Pressing F2 cycles through the following possibilities:
SINE (sine wave) → PARAB (parabola) → TRIANG (triangular wave) → RECT (square wave) → CIRCLE (circle) → CUBIC (cubic polynomial) → MT1 → MT2

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Breaking the melting part of the image into pixels – F4 (PIXEL) and F7 (PIXEL)

Use the following procedure.

1 Set F4 (PIXEL) to “ON”.

2 Press F7 (PIXEL), then adjust the following parameters.

Knob	Parameter	Setting
1	Density	Set degree to which image disappears (0.00 to 100.00)
2	Random	Set degree to which pixel position becomes more randomized further from the center (0.00 to 100.00)

Switching the melting direction – F5 (DIRECTION)

Press F5 (DIRECTION). Selecting “UP” makes the melting occur upwards, and selecting “DOWN” makes the melting occur downwards.

Lighting

The lighting function provides the effect of lighting on an image.

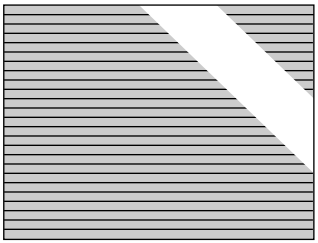
When the HKDS-7061 and HKDS-7071 are both installed, you can use the lighting functions on both DME channels 1 and 2. When only the HKDS-7061 is installed, you can use the lighting functions on DME channel 2 only.

Options installed	**HKDS-7061 and HKDS-7071**		**HKDS-7061 only**
Channel	DME 1	DME 2	DME 2
LIGHTING	Available	Available	Available

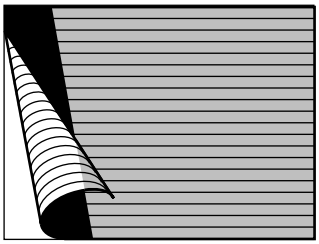
Note

It is not possible to apply two or more of the lighting, mask, and border effects simultaneously.

For an image to which nonlinear effects are not applied, there are two lighting effects: PLANE (overall reflection) and BAR (strip reflection). For an image to which nonlinear effects are applied, the two lighting effects are: PLANE and PRESET. The PRESET mode uses a reflection pattern specific to the particular effect.



BAR



PRESET (for PAGE TURN)

These examples show the lighting at maximum intensity. Reducing the intensity makes the image visible under the lighting.

Effect Selection

Top menu selection

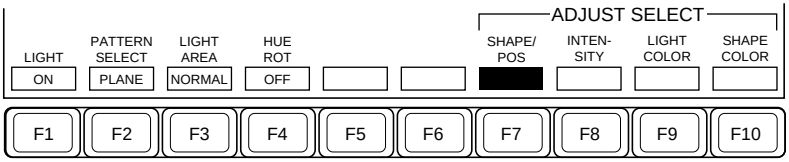
The lighting effects are selected from the LIGHT EFFECT menu.

In the LIGHT EFFECT menu, press the required item selection button as shown in the following table to select the effect.

Item selection button	Function	See page
1 (LIGHTING)	Make settings for the lighting effect.	see below

LIGHTING Settings

In the LIGHT EFFECT menu, select item 1 (LIGHTING) to display the LIGHTING menu.



Function key indications in the LIGHTING menu

The following are some of the operations carried out in this menu.

Toggling the lighting on and off – F1 (LIGHT)

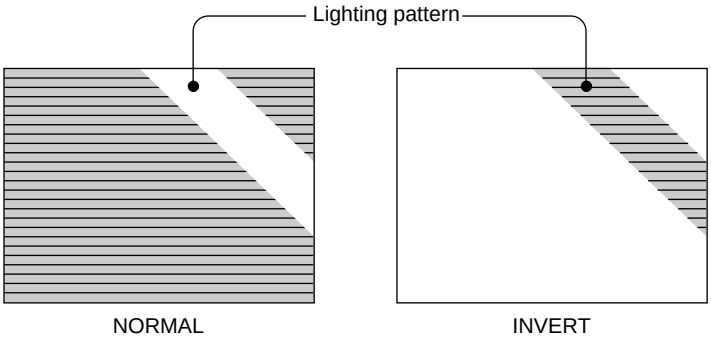
Press F1 (LIGHT).
When this is set to “ON”, the lighting settings are enabled.

Selecting the lighting pattern – F2 (PATTERN SELECT)

Press F2 (PATTERN SELECT).
Pressing F2 cycles through the settings for the lighting pattern as follows.
When a linear effect is selected: PLANE → BAR
When a nonlinear effect is selected: PLANE → PRESET

Inverting the lighting area – F3 (LIGHT AREA)

Press F3 (LIGHT AREA).
Pressing F3 toggles between the “NORMAL” and “INVERT” settings.
When “INVERT” is selected, the sense of the lighting pattern is reversed, so that the area outside the lighting pattern is illuminated and the area inside the lighting pattern is not illuminated.



Selecting lighting with a changing color – F4 (HUE ROT)

It is possible to provide continuously varying colors for the light falling on the “Light” region (highlights) and the “Shade” region *(see page 4-96)*.
Set F4 (HUE ROT) to “ON”.

Settings when the PLANE lighting pattern is selected

When F2 (PATTERN SELECT) is set to “PLANE”, use the following procedure to make the settings.

1 To adjust the intensity of the light, press F8 (INTENSITY), then adjust the following parameter.

Knob	Parameter	Setting
1	Light	Set intensity of light (0.00 to 100.00)

2 To adjust the color of the light, press F9 (LIGHT COLOR), then adjust the following parameters.

Knob	Parameter	Setting
1	Luminance	Set luminance (0.00 to 100.00)
2	Saturation	Set saturation (0.00 to 100.00)
3	Hue (when F4 is “OFF”)	Set hue (0.00 to 359.99)
	Speed (when F4 is “ON”) V	Set rate of change of hue per frame (–12.00 to +12.00)

Settings when the BAR lighting pattern is selected

When F2 (PATTERN SELECT) is set to “BAR”, use the following procedure to make the settings.

1 To select the strip shape, press F7 (SHAPE/POS), then adjust the following parameters.

Knob	Parameter	Setting
1	Size	Set size of the pattern (0.00 to 100.00)
2	Soft	Set the degree of softness of the pattern edge (0.00 to 100.00)
3	Offset	Set offset (parallel displacement) of the pattern position (–10.00 to +10.00)
4	Angle	Set direction and angle through which pattern is rotated (–8.00 to +8.00)

(Continued)

2 To adjust the intensity of the light, press F8 (INTENSITY), then adjust the following parameters.

Knob	Parameter	Setting
1	Light	Set intensity of “Light” region (highlights) (0.00 to 100.00)
2	Ambt	Set intensity of “Ambient” region (0.00 to 100.00)

3 To adjust the color of the light press F9 (LIGHT COLOR), then adjust the parameters.

*For details of the parameters, see step **2** in the previous item “Settings when the PLANE lighting pattern is selected”.*

Settings when the PRESET lighting pattern is selected (for cases other than “overlap nonlinear effects”)

When F2 (PATTERN SELECT) is set to “PRESET”, use the following procedure to make the settings.

For the settings for PAGE TURN and other “overlap nonlinear effects” (page 4-44), see the next item.

1 To make the settings relating to the pattern, press F7 (SHAPE/POS), then adjust the following parameters.

Knob	Parameter	Setting
1	Size	Set size of the pattern (0.00 to 100.00)
2	Soft	Set the degree of softness of the pattern edge (0.00 to 100.00)
3	Offset	Set offset (parallel displacement) of the pattern position (–100.00 to +100.00)
4	Angle [a)]	Set direction and angle through which pattern is rotated (–8.00 to +8.00)

a) This only appears for MIRROR and SPLIT.

2 To adjust the intensity of the light, press F8 (INTENSITY), then adjust the parameters.

*For details of the parameters, see step **2** in the item “Settings when the BAR lighting pattern is selected” (above).*

3 To adjust the color of the light press F9 (LIGHT COLOR), then adjust the parameters.

*For details of the parameters, see step **2** in the item "Settings when the PLANE lighting pattern is selected" (page 4-93).*

Settings when the PRESET lighting pattern is selected (for "overlap nonlinear effects")

For PAGE TURN and other "overlap nonlinear effects", when F2 (PATTERN SELECT) is set to "PRESET", use the following procedure to make the settings.

1 To make the settings relating to the pattern, press F7 (SHAPE/POS), then adjust the following parameters.

Knob	Parameter	Setting
1	Size	Set size of the pattern (0.00 to 100.00)
2	Soft	Set the degree of softness of the pattern edge (0.00 to 100.00)
3	Offset	Set offset (parallel displacement) of the pattern position (–100.00 to +100.00)

2 To adjust the intensity of the light, press F8 (INTENSITY), then adjust the following parameters.

Knob	Parameter	Setting
1	Light	Set intensity of "Light" region (highlights) (0.00 to 100.00)
2	Ambt	Set intensity of "Ambient" region (0.00 to 100.00)
3	Shade	Set intensity of "Shade" region (0.00 to 100.00)

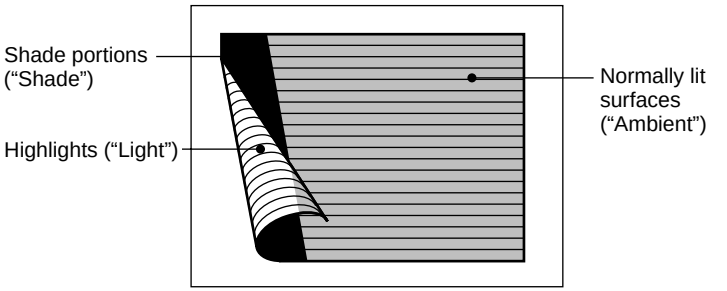
For a description of the significance of the different regions, see the figure on next page.

3 To adjust the color of the light on the "Light" region, press F9 (LIGHT COLOR), then adjust the parameters. To adjust the color of the light on the "Shade" region, press F10 (SHADE COLOR), then adjust the parameters.

*For details of the parameters in each case, see step **2** in the item "Settings when the PLANE lighting pattern is selected" (page 4-93).*

The three regions for which the light intensity can be set

- "Light" region: the highlights on which the light impinges.
- "Ambient" region: the remainder of the uniformly illuminated surface around the highlights.
- "Shade" region: the region in shade.



The three regions for which the light intensity can be set

Chapter 5
Input/Output Signal Operations

DME Selection and Input/Output Signals 5-2
Selecting Input/Output Operations 5-3
Top Menu Selection 5-3
Front and Back 5-3
Video Signal and Key Signal Settings 5-4
Front Video/Key Settings 5-4
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DME Selection and Input/Output Signals

This section describes DME selection and the input and output signals.

DME selection

The HDS-7150 can use either an internal DME (HKDS-7071 and HKDS-7061) or an external DME (an HDME-7000 connected to the EXT DME 1/2 connectors).

Selecting the DME

In the SYSTEM CONFIGURATION menu (*see Volume 1*), press F8 (DME CONFIG), and select one of the following.
INT: Use internal DME (HKDS-7071 and HKDS-7061)
EXT: Use external DME (HDME-7000)

Note

It is not possible to use the internal DME and an external DME simultaneously.

Input/output signals

Input/output signals using the internal DME

Make the following settings.

DME channel	Buses	Cross-points
DME 1	AUX 1/2/3	DME1V, DME1K
DME 2	VIDEO MOD	DME2V, DME2K

Input/output signals using an external DME

Make the following settings.

DME channel	Buses	Cross-points
DME 1	Set in DME IF menu. (See Volume 1)	DME1V, DME1K
DME 2		DME2V, DME2K

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Selecting Input/Output Operations

Here, input/output operations refer to the selection of the video and key signals used by the internal DME.

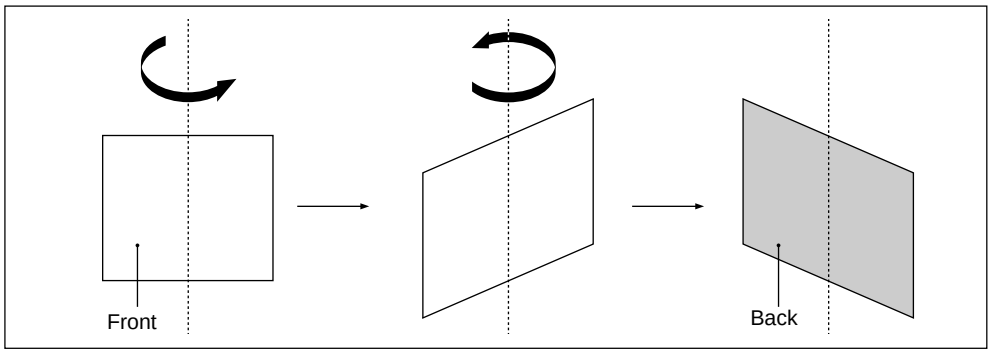
Top Menu Selection

Press the IN OUT button in the menu control section to display the IN/OUT menu.
In the IN/OUT menu, press the required item selection button as shown in the following table to select the operation.

Item	Function	See page
1 (FRONT INPUT)	Select video signal and key signal for the front side of the image.	5-4
2 (BACK INPUT)	Select video signal and key signal for the back side of the image.	5-5
3 (INPUT INVERT)	Invert the input signal.	5-6

Front and Back

The following figure illustrates the conceptual front and reverse, or back, sides of the image.



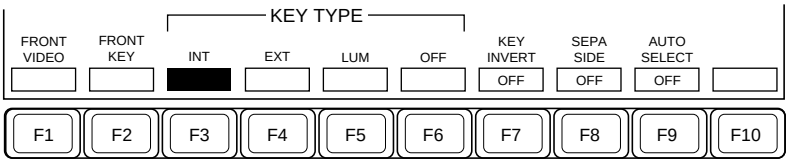
Conceptual front and back sides

Video Signal and Key Signal Settings

Make the input signal settings for the internal DME as follows.

Front Video/Key Settings

In the IN/OUT menu, select item 1 (FRONT INPUT) to display the FRONT INPUT menu.



Function key indications in the FRONT INPUT menu

Selecting the front video and key signals

Use the following procedure.

1 Use either of the following procedures to select the video signal.
- Hold down F1 (FRONT VIDEO), and press the appropriate cross-point button in the auxiliary bus block.
- Hold down F1 (FRONT VIDEO), and turn knob 2.

This selects the video signal.

2 Use either of the following procedures to select the key signal.
- Hold down F2 (FRONT KEY), and press the appropriate cross-point button in the auxiliary bus block.
- Hold down F2 (FRONT KEY), and turn knob 3.
- To select the key signal previously allocated to the video signal, set F9 (AUTO SELECT) to “ON”.

This selects the key signal.

3 Press F3 (INT) to F6 (OFF) to select the key type.

F3 (INT): Use the inside of the effective area defined as in “CROP Settings” *(see page 4-18)* as the key source.

F4 (EXT): Use an external key signal as the key source.

F5 (LUM): Use the luminance of the input video signal as the key source.

F6 (OFF): Set the key signal level forcibly to zero.

4 If you selected F4 (EXT) or F5 (LUM) in step **3**, adjust the following parameters.

Knob	Parameter	Setting
1	Clip	Set key signal reference level (–10.00 to +110.00)
2	Gain	Set key sensitivity (–100.00 to +100.00)

5 To invert the key signal, set F7 (KEY INVERT) to “ON”.

6 To insert separate signals in the front and back of the image, set F8 (SEPA SIDE) to “ON”.

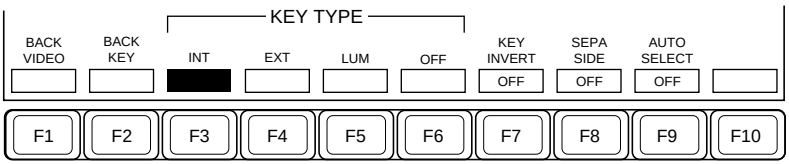
Back Video/Key Settings

Note

The back video/key settings are only effective on DME channel 1.

Selecting the back video and key signals

In the IN/OUT menu, select item 2 (BACK INPUT) to display the BACK INPUT menu.

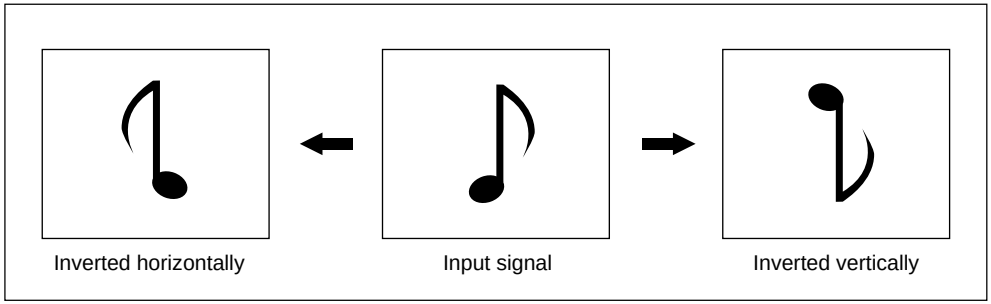


Function key indications in the BACK INPUT menu

Operations in the BACK INPUT menu are basically the same as in the FRONT INPUT menu. For details, see the previous section “Front Video/ Key Settings.”

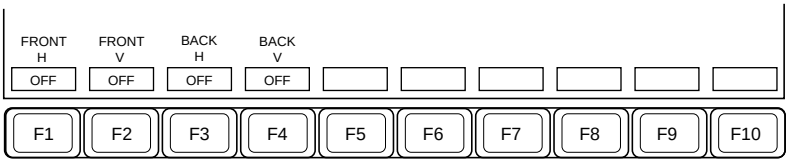
Inverting the Input Signal

This function inverts the orientation of the input video and key signals either horizontally or vertically.



Inverting the input signal

In the IN/OUT menu, select item 3 (INPUT INVERT) to display the INPUT INVERT menu.



Function key indications in the INPUT INVERT menu

The following are some of the operations carried out in this menu.

Inverting the front video and key signals

- To invert the signals in the horizontal direction, set F1 (FRONT H) to "ON".
- To invert the signals in the vertical direction, set F2 (FRONT V) to "ON".

Inverting the back video and key signals

- To invert the signals in the horizontal direction, set F3 (BACK H) to "ON".
- To invert the signals in the vertical direction, set F4 (BACK V) to "ON".

Note

The back video/key settings are only effective on DME channel 1.

Chapter 6
Keyframe Effects

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Creating and Editing Keyframes 6-4
Saving and Recalling Effects 6-4
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Basic Operations for Path Settings 6-8

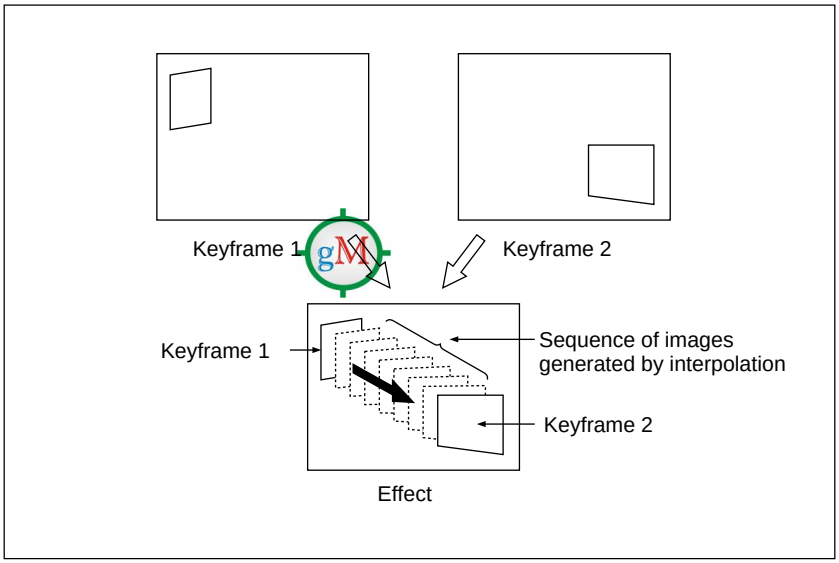
Overview

This section gives an overview of keyframe creation on the internal DME.

Keyframes and Effects

A keyframe is a set of data which determines the instantaneous pattern of an effect during a transition.

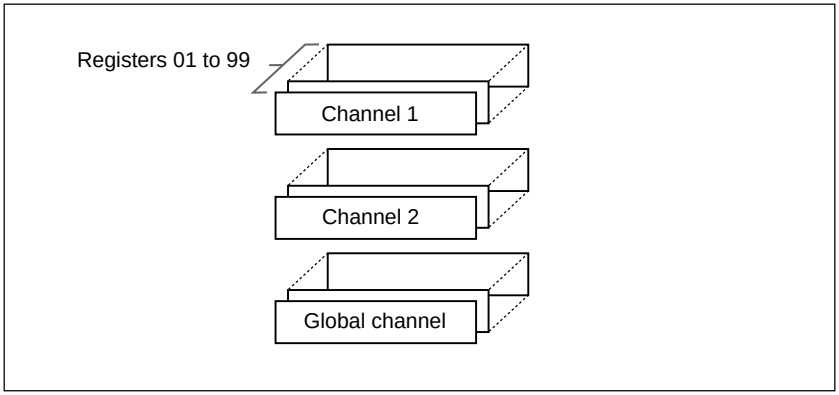
An effect, in turn, is obtained from a sequence of keyframes, interpolated along the time axis so as to appear continuous.



Obtaining an effect from a sequence of keyframes

Register Organization

The memory used to store the collection of keyframes making up an effect is divided into notional registers, numbered from 1 to 99. Each register can hold a maximum of 99 keyframes.
Each register is capable of holding effects for each of three channels (channels 1 and 2, and the global channel).
(The total capacity for three channels is 1000 keyframes.)



Register organization on the internal DME

Keyframe Operations

Creating and Editing Keyframes

The method of capturing DME images as keyframes is basically the same as when capturing images on the switcher.

For details, refer to the User's Guide Volume 1.

Saving and Recalling Effects

The procedure for saving and recalling DME effects is basically the same as on the switcher, but some of the buttons used are slightly different, as follows.

Accessing a register

Use the following procedure to access a register in which to save an effect.

1 In the numeric keypad section, press the EFF button, turning it on.

2 Press the required button(s) corresponding to the DME channel(s) from among the subregister buttons (DME 1, DME 2 and DME GLBL), turning it on.

3 Press the RECALL button, turning it on.

4 Enter the number of the register you wish to access, using the numeric keypad, and press the ENTER button.

- When creating a new effect, access a register which is not currently holding an effect. To access the next vacant register after the currently recalled register, without explicitly specifying a number, enter a period "." in place of the number.

This accesses the specified register.

Saving an effect in a register

To save a created effect in a DME register, use the following procedure.

1. In the numeric keypad section, press the EFF button, turning it on.
2. Press the required button(s) corresponding to the DME channel(s) from among the subregister buttons (DME 1, DME 2 and DME GLBL), turning it on.
3. Press the STORE/LEARN button, turning it on.
4. Enter the number of the register in which you wish to save the effect, and press the ENTER button.

Effect Execution

The procedure for executing DME effects is basically the same as for switcher effects. Select the channel(s) for execution using the subregister selection buttons in the numeric keypad section, and execute the effect in the same way as on the switcher.

For details, refer to the User's Guide Volume 1.

Parameter Settings Which Can Be Included in Keyframes

Some of the parameter settings on the control panel can be included in keyframes, and others cannot.

Basically, the SETUP menu settings cannot be included, and the remainder of the settings can be. There are, however, exceptions as listed in the following table.

Parameters which cannot be included		**Parameters which can be included**	
Menu name	**Parameters**	**Menu name**	**Parameters**
BKGD	Super Black Level	PROCESS CONTROL 2	WRAP AROUND (on/off setting)
EFFECT RUN MODE	Default KF Dur, Xpoint Hold (on/off setting)		

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Path Settings

These settings determine the way in which the elements defining the image change in the interpolated images. The term “path” is used to refer to the manner of interpolation.

Selecting Settings

It is possible to select the interpolation path between keyframes separately for different items (three-dimensional transformations, or various special effects, for example), or alternatively you can make a single setting for all items.

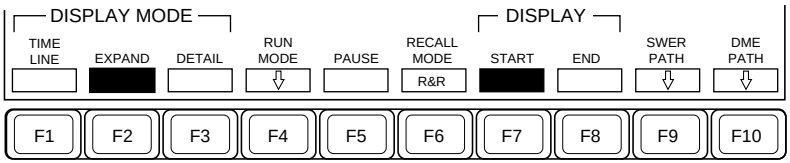
Displaying the DME KF PATH menu

The path setting items are selected from the DME KF PATH menu.

Use the following procedure to display the DME KF PATH menu.

1 Press the KEY FRAME top menu selection button.

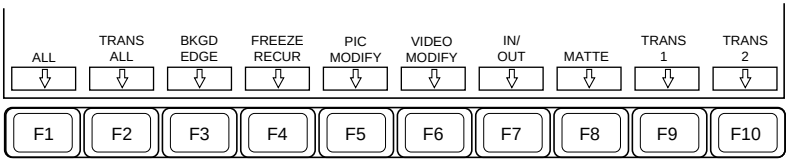
The KEY FRAME menu appears.



For details of F1 to F9 in this menu, refer to User’s Guide Volume 1.

2 Press F10 (DME PATH).

The DME KF PATH menu appears.



Selection operation

In the DME KF PATH menu, press the required function key as shown in the following table to select the menu.

Function key	Items set in the menu
F1 (ALL)	All items
F2 (TRANS ALL)	Three-dimensional transformations
F3 (BKGD EDGE)	BKGD & EDGE menu settings
F4 (FREEZE RECUR)	FREEZE & RECUR menu settings
F5 (PIC MODIFY)	PICTURE MODIFY menu settings
F6 (VIDEO MODIFY)	VIDEO MODIFY menu settings
F7 (IN/OUT)	Input/output signal operation settings
F8 (MATTE)	Color matte generator settings
F9 (TRANS 1)	Detailed settings for three-dimensional transformations
F10 (TRANS 2)	

Basic Operations for Path Settings

Making the same path setting for all items

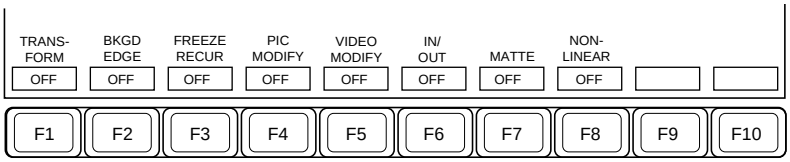
To make the same path setting for all items, use the following procedure in the PATH ALL menu. When making different path settings for different items, follow a modified version of the same procedure.

1 Stop the effect on the keyframe for which you wish to make the path setting.

This makes a path setting which affects the interpolation from this keyframe to the next keyframe.

2 In the DME KF PATH menu, press F1 (ALL).

The PATH ALL menu appears.



Function key indications in the PATH ALL menu

3 Press F1 (TRANSFORM) to F8 (NONLINEAR), corresponding to the settings you wish to make.

For example, pressing F1 (TRANSFORM) cycles through the following five possibilities: OFF → STEP → LINEAR → S-curve → Spline curve. F6 (MATTE) has six settings, but others, except spline curve, have four settings.

The following path settings are provided in the menu.

OFF: Make no change as the effect proceeds.

STEP: Change stepwise at each keyframe. In other words, there is no interpolation in the interval between keyframes.

LINEAR: Interpolate linearly between keyframes. This maintains a constant speed of movement.

S-CURVE: Accelerate and decelerate around each keyframe, so that the speed is maximum at the mid-point between two keyframes.

SPLINE: Use a spline curve to provide a smooth interpolation. (Valid for three-dimensional transformations only)

Path settings for "MATTE"

Settings other than "OFF" and "STEP" indicate a HUE change as seen on a vectorscope as follows:

CW: Rotate the hue clockwise.

CCW: Rotate the hue counterclockwise.

LONG: Rotate the hue in whichever direction makes the path to the next frame longest.

SHORT: Rotate the hue in whichever direction makes the path to the next frame shortest.

4 If with F1 (TRANSFORM) you selected a spline curve, adjust the parameters.

Knob	Parameter	Setting
1	Tension	Set degree of tension between points (–4 to +4)
2	Bias	Set degree of inclination of tangent at point (–4 to +4)
3	Continuity	Set degree of continuity at point (–4 to +4)

Chapter 7
Snapshot, Register, and Disk Operations

Snapshot, Register, and Disk Operations 7-2

Snapshot, Register, and Disk Operations

Snapshot, register, and disk operations for the internal DME on the HZS-7040 are basically the same as for the switcher.

For details of the operations, refer to the chapters of the HZS-7040 User's Guide Volume 1. Note, however, that corresponding to the switcher subregister selection, on the DME you select channels (channels 1 and 2, and the global channel).

To make the channel selection, use the DME 1, DME 2 and DME GLBL buttons from the subregister selection section in the numeric keypad section.

Snapshot Operations

Refer to the section, "Chapter 6 Snapshots", in the User's Guide Volume 1.
In particular, refer to the section, "DME snapshot operations".

Register Operations

Refer to the section, "Chapter 8 Registers", in the User's Guide Volume 1.
In particular, refer to the section, "Copying DME registers between channels".

Disk Operations

Refer to the section, "Chapter 9 Floppy Disk Operations", in the User's Guide Volume 1.
In particular, refer to the section, "Saving DME data".

Note

If you carry out any other operation on the DME during a disk operation, the disk operation may be aborted resulting in a communications error.
During a disk operation, do not carry out any other operation on the internal DME.

Chapter 8
Status Displays

Selecting Status Displays 8-2
Three-Dimensional Transformation Status Display 8-3
Matte Color Copying and Capture Operations 8-4

Selecting Status Displays

The status displays show the current settings of the three-dimensional transformation parameters. Included with the status displays is also the DME STATUS menu, which provides a function for copying a matte color used for DME operations and for capturing a matte color.

Top menu selection

The status displays are selected from the DME STATUS menu.

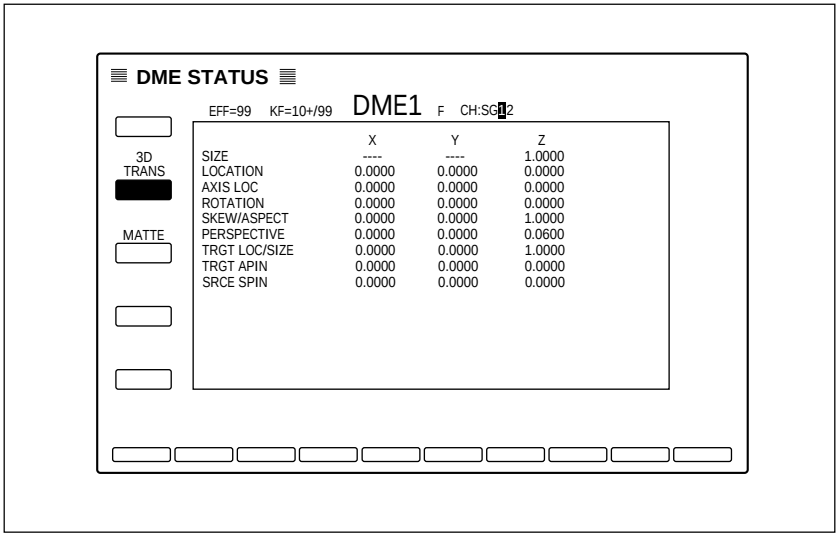
Press the required item selection button in the DME STATUS menu as follows.

Item selection button	Function	See page
2 (3D TRANS)	Display current settings of three-dimensional transformation parameters.	8-3
3 (MATTE)	Copy or capture a matte color.	8-4

Three-Dimensional Transformation Status Display

This displays the current state of the three-dimensional transformation parameters.

In the DME STATUS menu, select item 2 (3D TRANS) to show the 3D TRANSFORM display.



3D TRANSFORM display

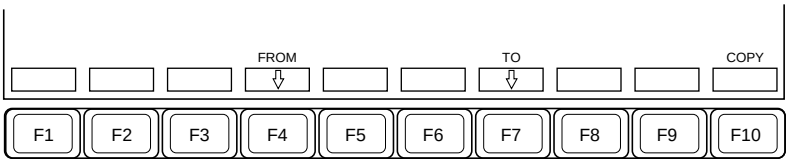
The 3D TRANSFORM display shows the current state of the three-dimensional transformation parameters.

Matte Color Copying and Capture Operations

You can copy the colors produced by the color matte generators for BKGD, BORDER, SHADOW, and other effects to other color matte generators. You can also capture a color for a color matte generator from an input video signal.

Displaying the COLOR MATTE menu

In the DME STATUS menu, select item 3 (MATTE) to display the COLOR MATTE menu.



Function key indications in the COLOR MATTE menu

The following are some of the operations carried out in this menu.

Copying a color – F4 (FROM), F7(TO) and F10 (COPY)

Use the following procedure.

1 Use F4 (FROM) to select the source color matte generator. Alternatively, hold down F4 and turn knob 2.

2 Use F7 (TO) to select the destination color matte generator. Alternatively, hold down F4 and turn knob 3.

3 Press F10 (COPY).

This carries out the copy.

Selecting the color of the matte – F4(FROM)

Use the following procedure.

1 Use F4 (FROM) to select the color matte generator. Alternatively, hold down F4 and turn knob 2.

2 Adjust the following parameters.

Knob	Parameter	Setting
1	Luminance	Set luminance (0.00 to 100.00)
2	Saturation	Set saturation (0.00 to 100.00)
3	Hue	Set hue (0.00 to 359.99)

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Chapter 9
Setup Operations

Selecting Setup Items **9-2**
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Selecting Setup Items

This section describes how to set up the items for controlling the internal DME.

Normally these settings will be made when the system is installed, but it may also be necessary to make changes from time to time.

Note

When you are using a BKDM-3010 DME Control Panel, install the software required for setup (HZS-7040 SYSTEM DISK 3 and 4) from the BKDM-3010.

Changing the signal format or screen mode

In order that changing the signal format or screen mode is done simultaneously on the switcher, use the switcher SETUP menu.

For details, refer to the User's Guide Volume 1.

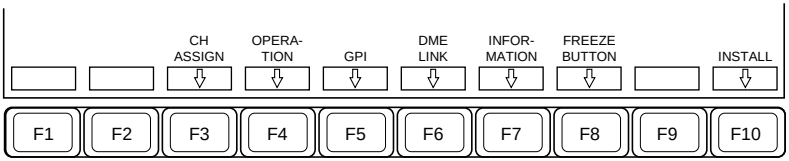
Note

Changing either of these settings resets the internal DME.

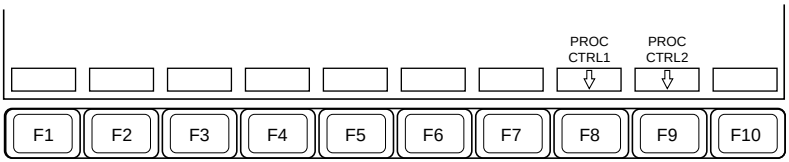
Top Menu Display

To use the menus for setup settings, select the DME SETUP menu.

The DME SETUP menu contains two groups of function key indications, which you can select with item selection buttons 1 and 2.



Function key indications in the DME SETUP menu (group 1)



Function key indications in the DME SETUP menu (group 2)

Selections in the two groups

In the DME SETUP menu, press the required function key as shown in the following table to select the menu.

Selecting from the first group of function key indications

Function key	Function	See page
F3 (CH ASSIGN)	Display channel numbers.	9-4
F4 (OPERATION)	Make settings related to operation.	9-6
F5 (GPI)	Make GPI settings.	9-9
F6 (DME LINK)	Make settings relating to the DME LINK function.	9-12
F7 (INFORMATION)	Display the software version of the processor and any installed option boards.	9-13
F8 (FREEZE BUTTON)	Make settings relating to the function of the FREEZE button allocated to the switcher control panel.	9-14
F10 (INSTALL)	Install system software.	9-16

Selecting from the second group of function key indications

Function key	Function	See page
F8 (PROC CTRL1)	Select the manner of processing signals.	9-18
F9 (PROC CTRL2)	Select the manner of processing signals and so forth.	9-20

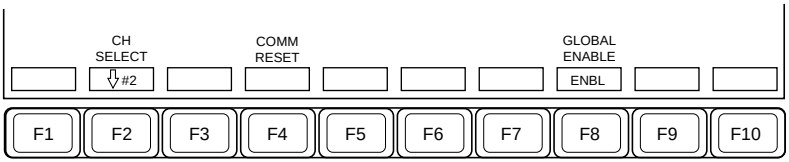
Global Channel Settings

The channel assignments on the internal DME are fixed as follows:

Logical Channel	1	2
Physical Channel	1	2

In this menu you can select whether the global channel is used or not.
It also allows you to reset the communications link between the switcher control panel and the DME if it is lost for any reason.

With the first group of function key indications shown in the DME SETUP menu, press F3 (CH ASSIGN) to display the CHANNEL ASSIGN menu.



Function key indications in the CHANNEL ASSIGN menu

The following are some of the operations carried out in this menu.

Resetting the communications link – F4 (COMM RESET)

If for any reason the communications link between the switcher control panel and the DME is lost, press F4 (COMM RESET).

This resets the communications link for all connected channels.

Selecting whether a channel is included in the global channel – F2 (CH SELECT) and F8 (GLOBAL ENABLE)

Use the following procedure to select whether DME channel 1 is included in the global channel.

1 Press F2 (CH SELECT) to select the logical channel number (1) . Alternatively, turn knob 2.

2 Press F8 (GLOBAL ENABLE).

Pressing F8 toggles the asterisk indication on the “GLOBAL ENABLE” line on and off.

When an asterisk is displayed the channel is included in the global channel; when no asterisk is displayed it is not.

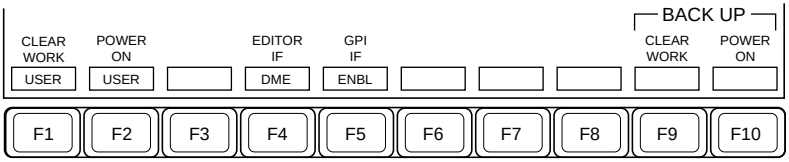
Note

Carrying out image processing while this menu is displayed results in a drop in display speed, and smooth motion may no longer be obtained. When you have made the necessary settings, switch to a different menu.

Settings Related to Operation

This menu controls various settings related to operation from the control panel.

With the first group of function key indications shown in the DME SETUP menu, press F4 (OPERATION) to display the OPERATION menu.



Function key indications in the OPERATION menu

The following are some of the operations carried out in this menu.

Selecting the initializing mode for the working keyframe buffer – F1 (CLEAR WORK)

Pressing the CLR WORK BUFR (clear working buffer) button in the DME control panel initializes the working keyframe buffer. There are two options for the state to which the working keyframe buffer is cleared, selected by pressing F1 (CLEAR WORK) as follows.

FACTORY: Clear to the factory default settings.

USER: Clear to the settings determined using F9 (CLEAR WORK).

Selecting the power on mode – F2 (POWER ON)

There are three options for the initial state of the display when the system is powered on, selected by pressing F2 (POWER ON) as follows.

FACTORY: Initialize to the factory default settings.

USER: Initialize to the settings determined using F10 (POWER ON)

RESUME: Initialize to the settings immediately before the system was last powered off.

Enabling the editor interface – F4 (EDITOR IF)

To control the DME unit from an editor connected to the EDITOR connector on the rear panel of the DME processor, press F4 (EDITOR IF) to select one of the following.

DME: Control from the editor using DME protocol.
VTR: Control from the editor using VTR protocol.
DSBL: Disable control from the editor.

Set the device constants for the intelligent device controller connected to the editor according to the protocol used, as shown in the following table.

DME protocol	CONST-1:	01	40	00	00	06	00	07	06
VTR protocol	CONST-1:	D0	02	00	96	03	03	02	81
	CONST-2:	0A	02	FF	00	00	0A	FF	

Enabling GPI input – F5 (GPI IF)

To activate the DME by means of trigger signals input from external equipment connected to the GPI connector on the rear panel of the processor, press F5 (GPI IF) to select “ENBL” (enable).
Pressing F5 toggles between “ENBL” and “DSBL” (disable) settings.

For details of the trigger types and the operations which they cause, see the section “GPI Settings” (page 9-9).

Saving a state to be recalled by pressing the CLR WORK BUFR button – F9 (CLEAR WORK)

Use the following procedure.

1 Set the three-dimensional transformation parameters, effects and so on to the required initial state.

2 In the OPERATION menu, press F9 (CLEAR WORK).

This stores the state of the settings at the time the button is pressed.

When F1 (CLEAR WORK) is set to “USER”, this state is restored when you press the CLR WORK BUFR button.

Saving a state to be recalled at power on – F10 (POWER ON)

Use the following procedure.

1 Set the setup settings, three-dimensional transformation parameters, effects and so on to the required initial state.

2 In the OPERATION menu, press F10 (POWER ON).

This stores the state of the settings at the time the button is pressed.

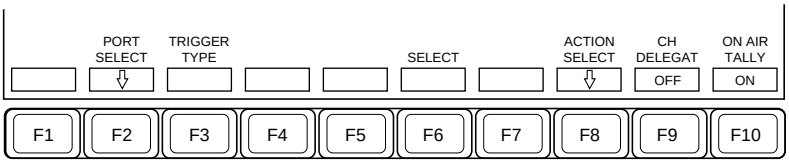
When F2 (POWER ON) is set to “USER”, this state is restored when you power on the system.

GPI Settings

Use this menu to set up the processor to accept and be controlled by GPI outputs from an editing control unit or other device.

To make these settings effective, set F5 (GPI IF) to “ENBL” in the OPERATION menu *(see page 9-6)*.

With the first group of function key indications shown in the DME SETUP menu, press F5 (GPI) to display the GPI menu.



Function key indications in the GPI menu

The following is a typical operation carried out in this menu.

Setting up the GPI inputs

This selects the trigger type and action to be carried out in response to each of the DME GPI ports on the HDS-7150.

Use the following procedure.

1 Press F2 (PORT SELECT), to select the number of the GPI port for which you wish to make the setting.

2 Press F3 (TRIGGER TYPE) to select the trigger type.
Pressing F3 cycles through the following possibilities.

: Trigger on the rising edge of an input pulse.

: Trigger on the falling edge of an input pulse.

: Trigger when the input changes polarity.

LOW ACT: When the GPI input goes low, the operating mode set as “ACTION” is established. The possible selections for “ACTION” are “4:3”, “16:9”, “525”, “625”, “D1” and “D2”.

HIGH ACT: When the GPI input goes high, the operating mode set as “ACTION” is established. The possible selections for “ACTION” are “4:3”, “16:9”, “525”, “625”, “D1” and “D2”.

NOP: No triggering by input pulse.

(Continued)

3 Press F8 (ACTION SELECT) and move the cursor to select the trigger action which is caused by the GPI input.

NO USE: Ignore incoming GPI signals.
S.S. RECALL?: Recall a snapshot.
EFF RECALL?: Recall a keyframe effect.
KF RUN: Rewind and execute a keyframe effect.
KF STOP: Stop a keyframe effect.
KF REWIND: Rewind a keyframe effect.
FREEZE: Freeze the input signal to the DME.
FORWARD JITTER: Each time the GPI signal is input, move forward one frame, and jitter, that is, display fields 1 and 2 alternately.
REWIND JITTER: Carry out a jitter operation from the beginning of a keyframe effect.
+1 FRAME: Move a stopped keyframe effect forward by one frame.
–1 FRAME: Move a stopped keyframe effect back by one frame.
+1 FIELD: Move a stopped key field effect forward by one field.
–1 FIELD: Move a stopped key field effect back by one field.
4:3: Switch the screen aspect ratio to 4:3.
16:9: Switch the screen aspect ratio to 16:9.

4 Press F5 (SELECT) to confirm the selection.

5 If you selected “EFF RECALL?” or “S.S. RECALL?” in step **3**, enter the number of the register from the numeric keypad.

6 Repeat steps **1** to **5** as necessary to carry out the settings for other input ports.

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Coupling the ACTION caused by a GPI input to channel selection

To make the “ACTION” effective only with respect to the currently selected channel(s), set F9 (CH DELEGAT) to “ON”. When F9 is set to “OFF”, the “ACTION” applies to all connected DME channels.

Note

Regardless of the setting of F9, the “4:3” and “16:9” settings always apply to all channels.

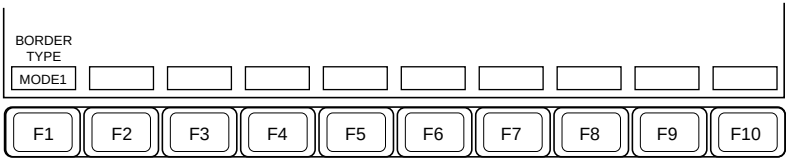
Outputting an on-air tally

To output ON AIR TALLY from GPI OUT, set F10 (ON AIR TALLY) to “ON”.

Settings for the DME LINK™ Function

These settings concern the execution of a transition with the fader lever and the control of the width of the border of a DME wipe pattern when using the “DME LINK” (“DME wipe”) function on the switcher.

With the first group of function key indications shown in the DME SETUP menu, press F6 (DME LINK) to display the DME LINK menu.



Function key indications in the DME LINK menu

Selecting the transition and border width control mode

Use the following procedure.

1 Press F1 (BORDER TYPE) to select the mode.

MODE 1: Regardless of the position of the fader lever, it controls both the transition and border width.

MODE 2: At either end of the travel of the fader lever, it controls only the border width, and in the center portion of its travel it controls only the transition.

2 If you selected “MODE 2”, then adjust the following parameters.

Knob	Parameter	Setting
3	Trans Range	Set the portion of the fader lever travel which controls only the transition[a)] (0.00 to 100.00)
4	Width	Set maximum width of the border of DME wipe pattern (0.00 to 100.00)

a) For example, setting a value of 80.00 means that 10% of the travel from either end controls only the border width, and the center 80% of the travel controls only the transition.

Displaying the Software Version

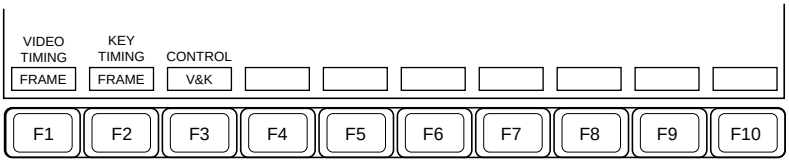
This function displays the software version of the HDS-7150.

With the first group of function key indications shown in the DME SETUP menu, press F7 (INFORMATION) to display the INFORMATION menu, which displays the software version.

FREEZE button Settings

This menu controls the function of the FREEZE button on the control panel.

With the first set of function key indications shown in the DME SETUP menu, select F8 (FREEZE BUTTON) to display the FREEZE BUTTON menu.



Function key indications in the FREEZE BUTTON menu

The following operation is carried out in this menu.

Setting up the FREEZE button function – F1 (VIDEO TIMING) to F3 (CONTROL)

Use the following procedure.

1 Press F3(CONTROL), and select the signal or signals to which the freeze function applies.

Pressing F3 cycles through the following selections.
V&K: both video and key input signals
VIDEO: video input signal
KEY: key input signal

2 Press F1 (VIDEO TIMING) to select the freeze timing for the video signal.

Pressing F1 cycles through the following selections.
FRAME: freeze one frame.
FIELD1: freeze field 1.
FIELD2: freeze field 2.

3 Press F2 (KEY TIMING) to select the freeze timing for the key signal.

The settings are the same as in step **2.**

Installing System Software

This section describes how to install the HZS-7040 SYSTEM DISK 3.

If a new version of the software is issued, use the same procedure to install it.

About the Operation Software

The HZS-7040 Operation Software includes two floppy disks for the internal DME: SYSTEM DISK 3, for the processor, and SYSTEM DISK 4, for the control panel.

When you are using a BKDS-7031 and a BKDM-3010 DME Control Panel together, install both SYSTEM DISK 3 and SYSTEM DISK 4 from the BKDM-3010.

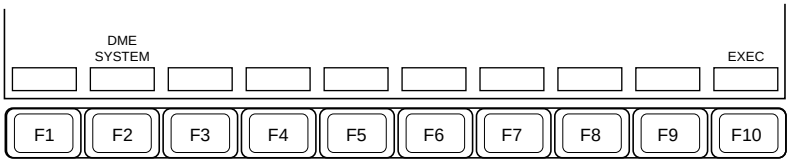
If you are not using a BKDM-3010, install SYSTEM DISK 3 only, from the switcher control panel, using the procedure below.

For details of the installation of other software, see page 1-4.

Installation procedure

Use the following procedure.

1 With the first group of function key indications shown in the DME SETUP menu, select F10 (INSTALL) to display the INSTALL menu.

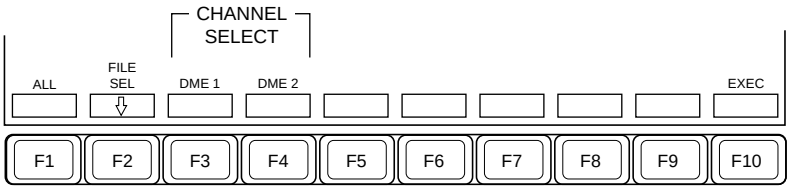


Function key indications in the INSTALL menu

2 Insert the floppy disk labeled “SYSTEM DISK 3” in the floppy disk drive on the switcher control panel.

3 Press F2 (DME SYSTEM), then F10 (EXEC).

The function key indications change as follows, and the menu screen shows a list of the software included in SYSTEM DISK 3.



4 To install all of the software, press F1 (ALL).

To select the software to install, press F2 (FILE SEL), and align the cursor with the required software.

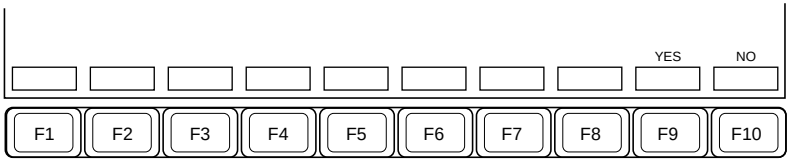
5 Press F3 (DME1) to select channel 1 for software installation.

Note

F4 (DME 2) is included for future expansion. In Version 1.00 it is only possible to select DME 1.

6 Press F10 (EXEC).

The function key indications change as follows.

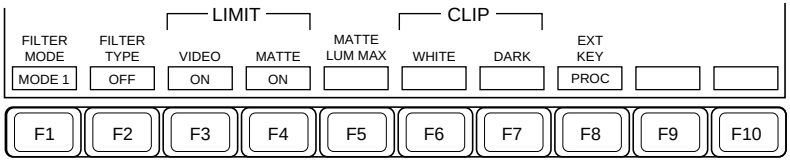


7 To install the software, press F9 (YES), and to abandon installing the software, press F10 (NO).

Signal Processing Settings 1

This menu selects settings for signal processing within the internal DME.

With the second group of function key indications shown in the DME SETUP menu, press F8 (PROC CTRL1) to display the PROCESS CONTROL 1 menu.



PROCESS CONTROL 1 menu

The following operations are carried out in this menu.

Selecting the filter mode – F1 (FILTER MODE)

There are two modes of filter processing which can be applied to the video signal: press F1 (FILTER MODE) to toggle between them.

MODE 1: The filter corrections are such as to make the picture clearly visible even when compressed.

MODE 2: The filter corrections are such as to reduce aliasing problems when the picture is enlarged or compressed.

Selecting the filter type – F2 (FILTER TYPE)

Press F2 (FILTER TYPE) to toggle between the filter types.

FLAT: The filter is applied uniformly.

DEPTH: The strength of application of the filter is controlled for each individual pixel on the basis of the depth information.

Setting the video signal color limiter – F3 (VIDEO)

Set F3 (VIDEO) to “ON” to switch on the video signal color limiter, which prevents illegal colors from being generated.

Setting the matte signal color limiter – F4 (MATTE)

Set F4 (MATTE) to “ON” to switch on the matte signal color limiter, which prevents illegal colors from being generated.

Setting a maximum luminance limit for the matte signals – F5 (MATTE LUM MAX)

To set a maximum luminance limit for the matte signals, press F5 (MATTE LUM MAX), then adjust the following parameter.

Knob	Parameter	Setting
4	Lum max	Set maximum luminance (70.00 to 130.00 %)

Setting minimum and maximum luminance limits for the video signals – F6 (WHITE) and F7 (DARK)

Use the following procedure.

1 To set a maximum limit, press F6 (WHITE), then adjust the following parameter.

Knob	Parameter	Setting
4	White Clip	Set white clip level (70.00 to 130.00 %)

2 To set a minimum limit, press F7 (DARK), then adjust the following parameter.

Knob	Parameter	Setting
3	Dark Clip	Set dark clip level (–40.00 to 0.00 %)

Outputting an external key signal without processing – F8 (EXT KEY)

To output an external video signal without subjecting it to level processing in an internal key generator for example, press F8 (EXT KEY), to select "THRU" (through). To output the signal as processed internally, select "PROC" (process).

Note

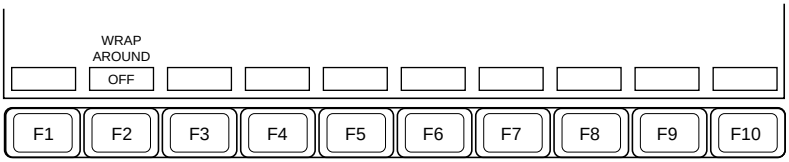
When you select "Through", it is no longer possible to use the following functions:

- Recursive
- Drop shadow
- Key clip
- Key gain

Signal Processing Settings 2

This menu selects settings for signal processing within the internal DME.

With the second group of function key indications shown in the DME SETUP menu, press F9 (PROC CTRL2) to display the PROCESS CONTROL 2 menu.



PROCESS CONTROL 2 menu

The following operation is carried out in this menu.

Enabling or disabling virtual images – F2 (WRAP AROUND)

If you apply an extreme perspective effect, it is possible for parts of the image to be behind the notional viewpoint: these are called virtual images. Press F2 (WRAP AROUND) to toggle on and off the display of virtual images.

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Operation Software

HZS-7040

User's Guide

HD Digital Video Switcher

HDS-7150

Volume 3
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Software Version 1.00 and Later

Digital HDVS

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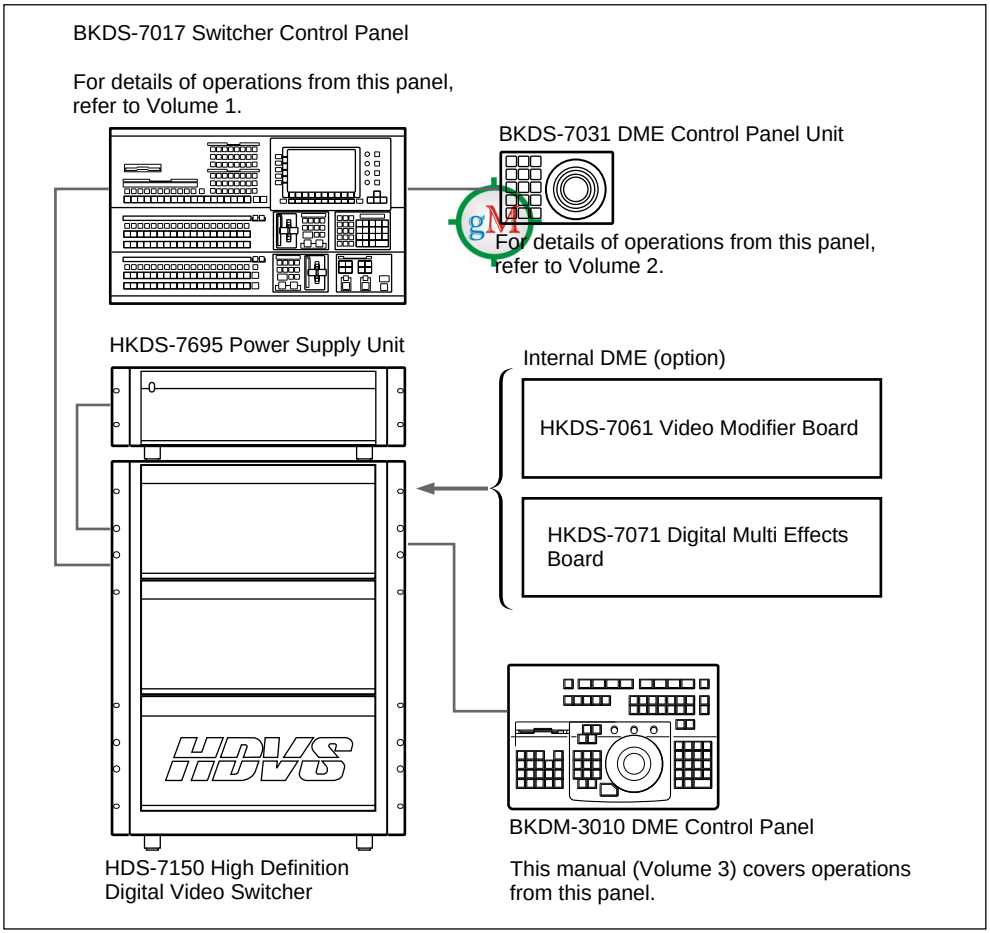
HDS-7150 System Introduction

This manual is Volume 3 of the User's Guide for the HZS-7040 Operation Software.
The User's Guide consists of three volumes, and this volume covers control of the HDS-7150 internal DME (option) from the BKDM-3010 DME Control Panel Unit.

System Configuration

The following figure shows an example configuration of an HDS-7150 system.


BKDS-7017 Switcher Control Panel
For details of operations from this panel, refer to Volume 1.
BKDS-7031 DME Control Panel Unit
For details of operations from this panel, refer to Volume 2.
HKDS-7695 Power Supply Unit
Internal DME (option)
HKDS-7061 Video Modifier Board
HKDS-7071 Digital Multi Effects Board
HDVS
BKDM-3010 DME Control Panel
This manual (Volume 3) covers operations from this panel.
HDS-7150 High Definition Digital Video Switcher

Terms used in this manual

In this manual the following terms (other than product names) are used to refer to this software product and related devices.

Term used in this manual	Corresponding device and function
“Internal DME” or “DME”	DME functions provided by installing HKDS-7061 and HKDS-7071 in the switcher
“External DME”	HDME-7000 High Definition Digital Multi Effects connected to the switcher
“DME control panel” or “control panel”	BKDM-3010 DME Control Panel Unit (The other DME control panel which can be connected to the switcher is always referred to by its model name, the BKDS-7031.)
“Switcher”	HDS-7150 High Definition Digital Video Switcher
Menu monitor	VGA Data Display Unit

Operation Software

The HZS-7040 Operation Software provides for control of an HDS-7150 High Definition Digital Video Switcher and internal DME function.

Disks and manuals included in the HZS-7040

The following disks and User’s Guide volumes are included in the product.

Label	Contents
SYSTEM DISK 1	Switcher processor software (including software for the HKDS-7061)
SYSTEM DISK 2	Switcher control panel software
SYSTEM DISK 3	Internal DME software (for the HKDS-7071)
SYSTEM DISK 4	Software for the BKDM-3010 DME Control Panel
User’s Guide Volume 1	Description of switcher operating procedures
User’s Guide Volume 2	Description of operating procedures for the internal DME controlled from the BKDS-7031 DME Control Panel Unit
User’s Guide Volume 3 (this manual)	Description of operating procedures for the internal DME controlled from the BKDM-3010 DME Control Panel

Installing software, and User's Guide volumes used

Use the disks and User's Guide volumes included in the HZS-7040 according to the following table of objectives.

Objective	Control panel	Disks used	Software installation destination	User's Guide volume for reference
Operating the switcher	BKDS-7017	DISK 1 and DISK 2	BKDS-7017 Switcher Control Panel	Volume 1
Operating the internal DME	BKDS-7031	DISK 3	BKDS-7017 Switcher Control Panel	Volume 2
	BKDM-3010	DISK 3 and DISK 4	BKDM-3010 DME Control Panel	Volume 3

For details of the method of installing DISK 3 and DISK 4 in the BKDM-3010, see page 10-30 in this manual.

For other installation procedures refer to the corresponding manual.

Note

With the HDS-7150, you can use either an internal DME (HKDS-7061 and HKDS-7071) or an external DME (HDME-7000 or similar connected to the EXT DME 1/2 connectors). However, it is not possible to use both together.
To use an internal DME, in the SYSTEM CONFIGURATION menu (*see Volume 1*), set DME CONFIG to "INT."
For the operations when an external DME is selected ("EXT"), refer to the HZDM-7020 User's Guide.

Features

Installing the HKDS-7061 and HKDS-7071 in the HDS-7150 switcher allows you to use the internal DME function. This provides the following features.

Three-dimensional image transformations

The system offers a range of three-dimensional processes both with respect to the source coordinates (that is, the input video space) and the target coordinates (that is, the video space of the output), including shifting, rotation, and zoom functions. Smooth and accurate manipulation is provided by the x-y track ball and Z-ring.

Special effects functions

The following are some of the special effects you can apply to a video image:

- Background coloring and edge effects
- Freeze and strobe effects, using recursive memory functions, and afterimage effects
- Overall image effects ("multi move," and defocusing, for example)
- Video and key signal transformations (negative image, mosaic effects, etc.)
- Various nonlinear effects (waves, page turns, and so forth)
- Lighting effects

Keyframe effects

You can save DME image states and special effects as keyframes. By building a series of keyframes for appropriate points on the time axis, you can build and save an effect, for which the system automatically provides the interpolation between each successive pair of keyframes.

Simultaneous display of two menus

You can display two menus simultaneously on the screen. This allows parallel display of the settings for two effects, or operations in one menu while watching the status in another.

Quick menu access

The menus are arranged in a shallow hierarchy, with each group of logically associated menus accessible from a single top-menu button. Most on/off functions and parameter settings can be made from a menu within one layer of top menu.
Each menu also has a page number, which makes it possible to access any menu directly from menus in the other menu groups by entering its page number from the numeric keypad.

Editor interfaces

It is possible to use an editing control unit such as the BVE-2000 or BVE-9100 connected to either the Sony 9-pin remote interface or the GPI interface, for execution of key frame and other effects.

Note

The photographs and figures of screen examples in this User's Guide illustrate the case where the aspect ratio is set to the 4:3 mode. When the 16:9 mode is selected, the screen aspect ratio is 16:9.

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Channel Assignments

Channels which can be used

For the HDS-7150 internal DME function, the available DME channels are automatically assigned as follows, depending on the configuration of the HKDS-7061 Video Modifier Board and HKDS-7071 Digital Multi Effects Board installation.

Channel	Option Configuration	
	HKDS-7061 and HKDS-7071	**HKDS-7061 only**
DME channel 1	Can be used. This channel provides three-dimensional transformations, background and edge effects, picture modifiers, video modifiers, nonlinear effects, and so on.	Cannot be used.
DME channel 2	Can be used. This channel provides input freeze, picture modifiers, video modifiers, and other effects.	
Global channel	Can be used for the channel 1.	Cannot be used.

Input video selection

Use the auxiliary buses of the switcher for input video to the internal DME as follows.

Channel number	Application	Bus used
DME 1	Video input	AUX 1
	Key input	AUX 2
	External video input [1)]	AUX 3
DME 2	Video input	VIDEO MOD
	Key input	VIDEO MOD (Hold down the VIDEO MOD button and press the input select button.)
	External video input [1)]	AUX 3

1) Tha same signal is input to DME 1 and DME 2.

Starting Up and Powering Off

Starting up

Powering on the processor and menu monitor starts the system, and the initial screen *(see page 4-8)* appears on the menu monitor. The system is now ready for control panel and menu operations.

Start-up state

It is possible to save function on/off settings and parameter values in nonvolatile memory, and arrange to recall these settings automatically when the system is started.
If no such setting is made, the system starts up with the factory default settings.

For details see "OPERATION menu" on page 10-7.

Powering off

You can power off the system regardless of the current display on the menu monitor.

Note

Do not power the unit off during any of the following operations.

- While a floppy disk is being accessed *(see "Floppy Disk Operations – 77" on page 8-15)*
  This may cause files on the floppy disk, or backup copies of data in the processor (contents of effect registers or snapshot registers) to be corrupted.
- During installation of the software *(see "Installing the Software in the Processor – 724" on page 10-32)*
- While writing setup data

If the unit is powered off during operation, the data being written may be corrupted. If you power the unit off inadvertently, restart the system with the factory default settings, then make the required settings or restore the settings by loading again from the floppy disk.

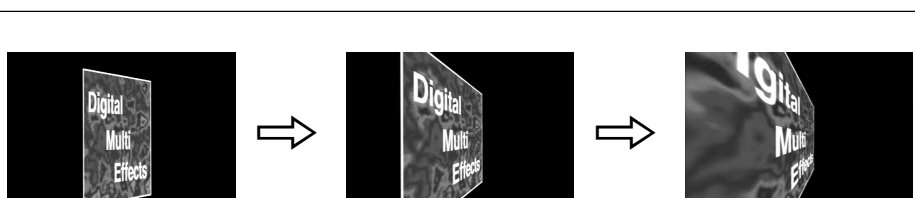
Examples of DME Effects

This section illustrates some of the effects which the internal DME can produce, using photographs. It also refers to the page numbers (in parentheses) on which the corresponding procedures are described.
The following screen examples illustrate the case where the aspect ratio is set to the 4:3 mode. When the 16:9 mode is selected, the screen aspect ratio is 16:9. *(See page 10-27.)*

Three-Dimensional Transformations

Displacement in 3-D space (page 3-9)

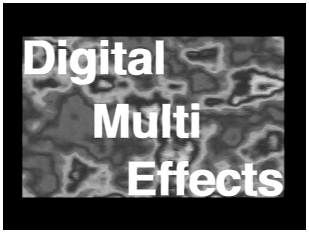
Rotation in 3-D space (page 3-13)



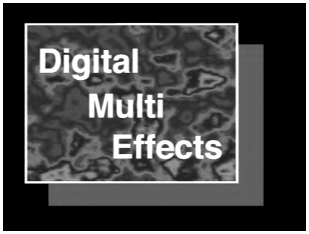
Perspective deformation (page 3-26)

Background and Edge Effects

BORDER (page 5-13)



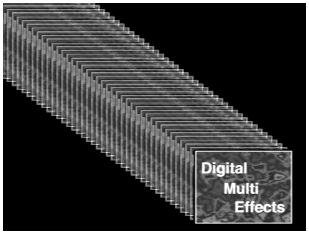
CROP (page 5-16)



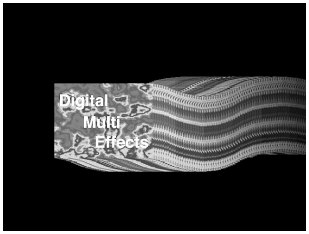
DROP SHADOW (page 5-18)

Freeze and Afterimage Effects

MOTION DECAY (page 5-24)



TRAIL (page 5-27)



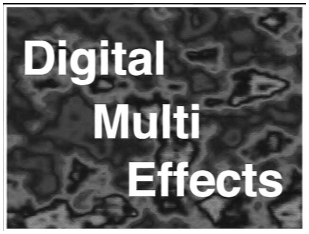
WIND (page 5-29)

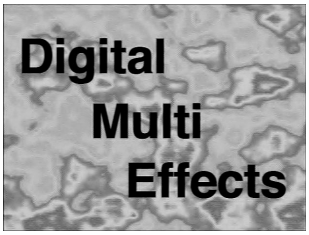
Overall Image Effects

MULTI MOVE (page 5-35)

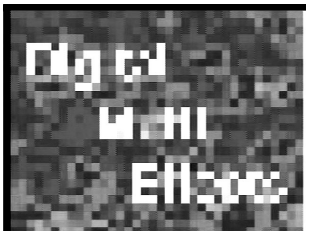
DEFOCUS (page 5-36)

Video Signal Effects





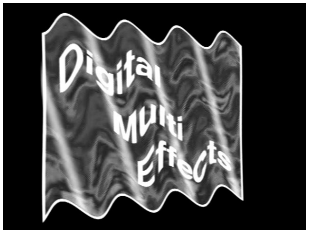
NEGA (page 5-40)



MOSAIC (page 5-45)

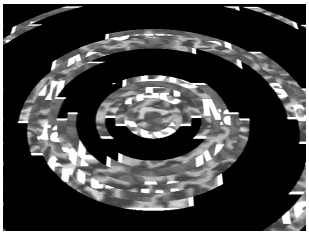
Nonlinear Effects

WAVE (page 5-51)

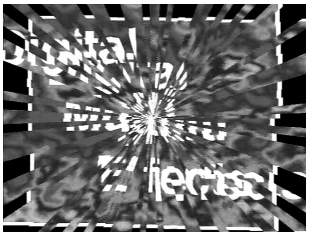


FLAG (page 5-56)

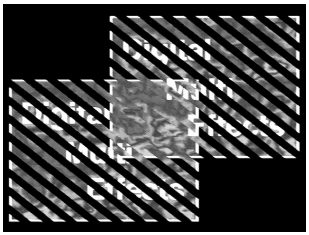
RIPPLE (page 5-57)



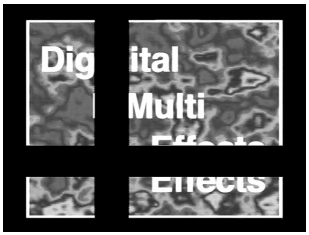
RINGS (page 5-59)



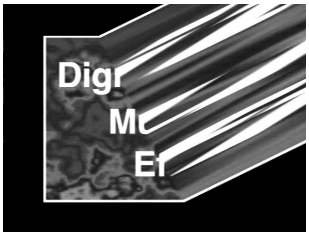
BROKEN GLASS (page 5-60)



FLYING BARS (page 5-61)

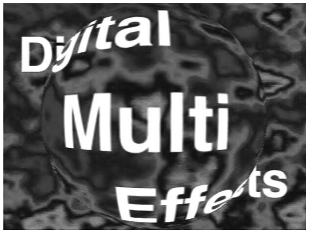


SPLIT (page 5-62)



CHARACTER TRAIL (page 5-65)

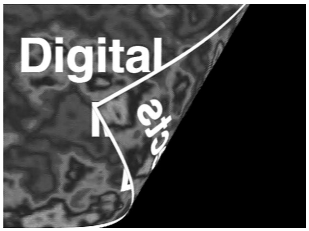
MIRROR (page 5-66)



LENS (page 5-67)

CIRCLE (page 5-68)

PANORAMA (page 5-69)



PAGETURN (page 5-70)

CYLINDER (page 5-73)

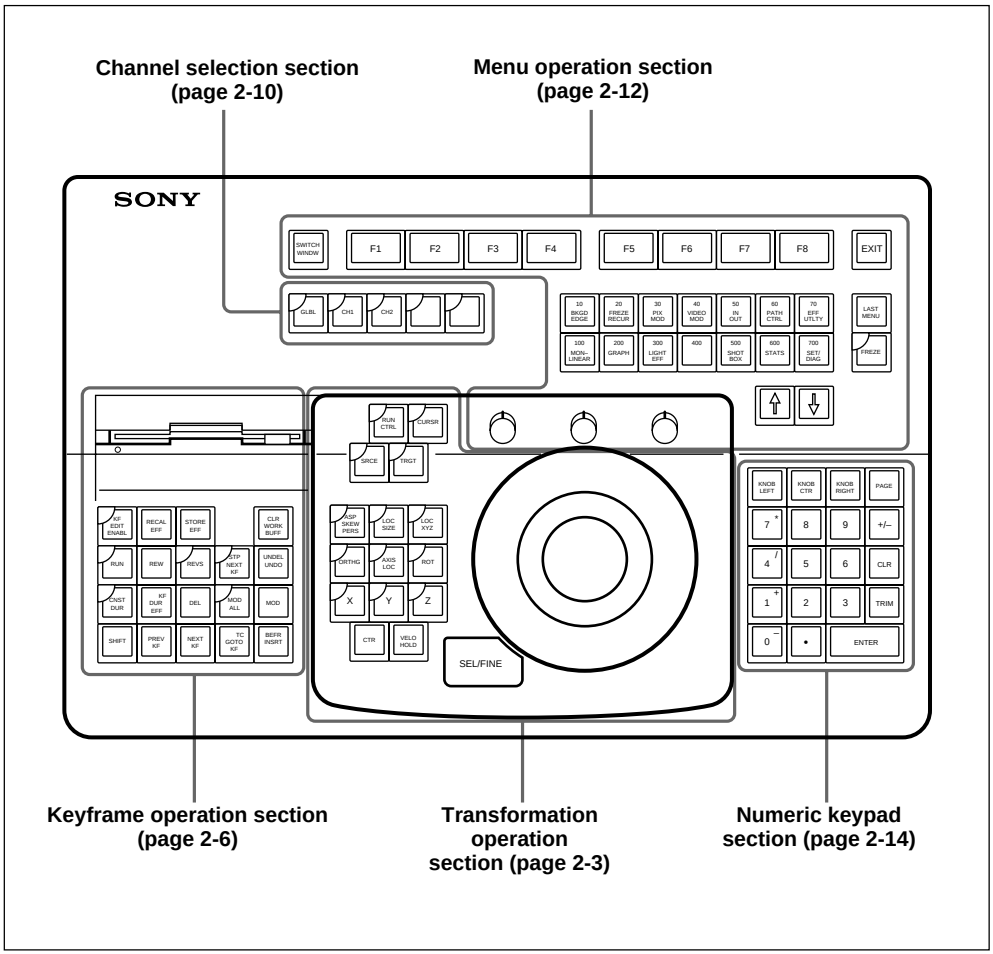
SPHERE (page 5-75)

Chapter 2
Location and Function of Parts

Control Panel 2-2
Transformation Operation Section 2-3
Keyframe Operation Section 2-6
Channel Selection Section 2-10
Menu Operation Section 2-12
Numeric Keypad Section 2-14

Control Panel

The control panel is divided into a number of blocks, as shown in the following figure. A page number in parenthesis after a block name indicates the page on which a more detailed description starts.



Control panel blocks

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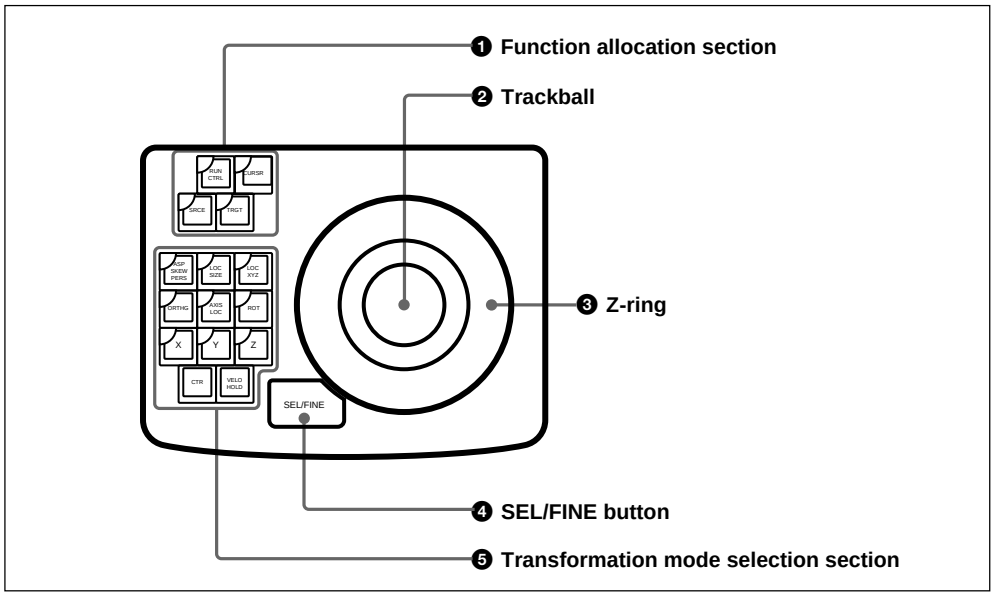
Transformation Operation Section

The transformation operation section is used for three-dimensional image manipulation and cursor movement on menu screens.



Transformation Operation Section

❶ Function allocation section

Press any one of these buttons, turning it on, to allocate the trackball ❷ and Z-ring ❸ as follows.

RUN CTRL (control) button: Allocates the trackball and Z-ring to effect execution.

SRCE (source) button: Allocates the trackball and Z-ring to transformation operation in the source coordinate frame, that is, the coordinates based on the video image itself. [1)]

TRGT (target) button: Allocates the trackball and Z-ring to transformation operation in the target coordinate frame, that is, the coordinates based on the output video space on the main monitor. [1)]

CURSR (cursor) button: Allocates the trackball to cursor movement on the menu screens. [1)]

This also allocates the Z-ring to adjust the parameter at the cursor position.

❷ Trackball

Depending on the state of the buttons in the function allocation section ❶, trackball operation can be allocated to effect execution, x- and y-axis movement in transformation operations, or cursor movement on the menu screens.

1) The rate of movement of image or cursor can be varied in the TRACK BALL menu *(page 10-10)*.

❸ Z-ring

Depending on the state of the buttons in the function allocation section ❶, Z-ring operation can be allocated to effect execution, z-axis movement in transformation operations, or to adjustment of the parameter at the cursor position.

❹ SEL/FINE (select/fine) button

The function of this button depends on the selection made in the function allocation section, as follows.

- When the CURSR button is lit, the SEL/FINE button selects the item at the cursor position, or toggles a function on or off. When the cursor is indicating a parameter value, pressing the SEL/FINE button enables parameter input from the numeric keypad.[1)]
- When the RUN CTRL, SRCE or TRGT button is lit, holding down the SEL/FINE button changes the effect of the trackball or Z-ring to a fine adjustment.[2)]

❺ Transformation mode selection section

When either of the SRCE and TRGT buttons in the function allocation section ❶ is lit, the buttons in this section determine the nature of the transformation carried out in the corresponding set of coordinates.

ASP/SKEW/PERS (aspect/skew/perspective) button: When the SRCE button is lit, the trackball controls the skew of the image, and the Z-ring controls the aspect ratio. When the SRCE button is lit, pressing this button while holding down the SHIFT button in the keyframe operation section displays the X, Y, and RATE parameters in the three-dimensional parameter display section of the menu screen. You can then change the image sizes in the x- and y-directions separately by using the trackball, and adjust the aspect ratio using the Z-ring.
When the TRGT button is lit, the trackball and Z-ring vary the perspective of the image.[2)]

LOC (location) SIZE button: The Z-ring changes the size of the image, and the trackball moves the image in the x- and y-directions.

LOC (location) XYZ button: The trackball moves the image in the x- and y-directions and the Z-ring moves the image in the z-direction.

ORTHG (orthogonal) button: When this button is lit, the image moves only in the one of the x- and y-directions in which the trackball is moved more. In other words, this button can be used for movement in the x- or y-direction only.
When this button is off, the movement of the image directly reflects the movement of the trackball.

1) In this manual, the operation of pressing the SEL/FINE button with the cursor on a particular item is referred to as "clicking" on that item. Equally, if the mouse is used to place the cursor on an item, pressing and releasing a mouse button once is also referred to as "clicking" on the item.

2) The rate of fineness or the function of the buttons can be varied in the TRACK BALL menu *(page 10-10)*.

AXIS LOC (location) button: When this button is lit, the axis of rotation of the image is moved, in the x- and y-directions by the trackball, and in the z-direction by the Z-ring.

ROT (rotation) button: The trackball rotates the image about the x- and y-axes, and the Z-ring about the z-axis.[1)] Pressing this button while holding down the SHIFT button in the keyframe operation section changes the three-dimensional parameter display section of the menu screen to the TRGT SPIN display or SRCE SPIN display according to the setting of the function allocation section. This enables you to use the spin function.

X, Y, Z buttons: Use these buttons to restrict the axes affected by movement of the trackball and Z-ring. Additionally, when one of these buttons is lit, the numeric keypad can be used to input coordinate data for that axis.

CTR (center) button: Pressing this button changes the current data values for the trackball or Z-ring positions to closest system-specified values (i.e. provides a detent function). Immediately pressing this button once more reverts to the system default values.

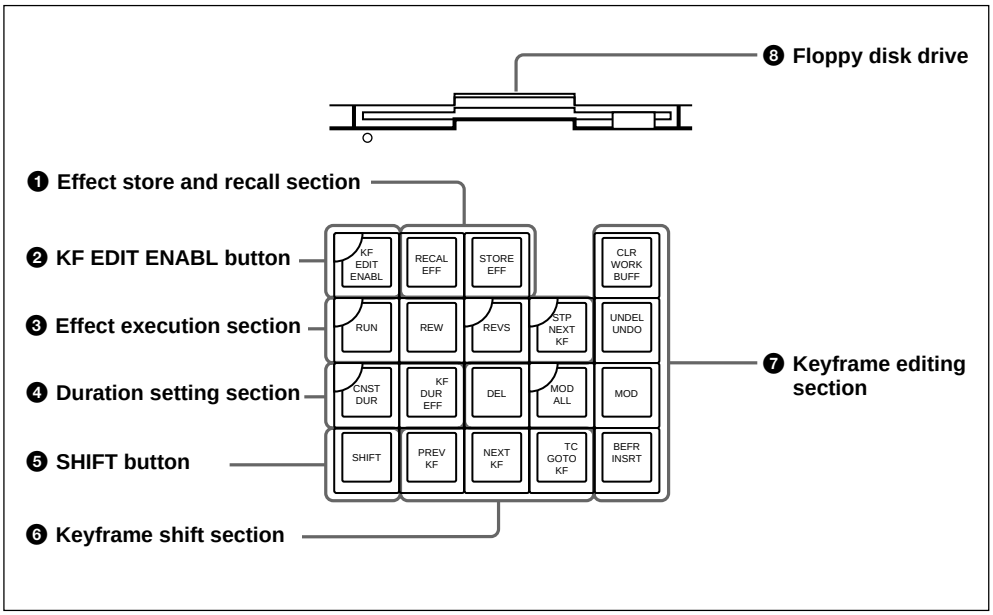
VELO (velocity) HOLD button: If you hold down this button, then move the trackball or Z-ring, the movement continue when you release the trackball or Z-ring as long as you hold down the button.[2)]

1) Using the spin function *(page 3-28)* in place of the ROT button enables you to specify the number of rotations when creating an effect.

2) The rate of movement can be varied in the TRACK BALL menu *(page 10-10)*.

Keyframe Operation Section

The keyframe operation section is used for creating, editing and executing keyframe effects.



Keyframe operation section

❶ Effect store and recall section

RECAL EFF (recall effect) button: Pressing this button then entering a register number recalls the effect stored in that register.
Entering a period "." in place of the number selects the next vacant register after the currently recalled register.
Pressing this button then entering 0 returns to the state before recalling the current effect, that is, to the state before carrying out the edit.

STORE EFF (effect) button: Pressing this button then entering a register number saves a keyframe effect in the corresponding register.
Again, entering a period "." in place of the number selects the next vacant register after the currently recalled register.

❷ KF (keyframe) EDIT ENABL (enable) button

When this button is lit, the system is in edit mode; that is, keyframes can be created and edited. During effect execution, however, creating and editing is inhibited, regardless of the state of this button.

When this button is off, the BEFR/INSRT, MOD, DEL, UNDEL/UNDO, MOD ALL and KF/DUR EFF buttons are disabled.

❸ Effect execution section

RUN button: Pressing this button executes a keyframe effect from the current position to the last keyframe. Pressing the button while the effect is being executed pauses the effect, and pressing it a third time resumes execution.

If the current position is the last keyframe, the system returns to the initial keyframe and executes the whole effect.

While the effect is being executed, this button lights green.

REW (rewind) button: This rewinds the currently recalled effect to the initial keyframe, unless the REVS button is lit, in which case it winds forward to the last keyframe.

REVS (reverse) button: When this button is lit, you can execute the effect in the reverse direction, using the RUN button.

STP (stop) NEXT KF (keyframe) button: When this button is lit, pressing the RUN button executes the effect from the current position to the next keyframe.

❹ Duration setting section

CNST DUR (constant duration) button: When this button is lit, inserting a keyframe or deleting a keyframe does not change the total duration of the effect. Also, inserting or deleting a keyframe does not change the position on the time axis of any other keyframes.

KF/DUR EFF(keyframe/effect duration) button: Press this button on its own to enter the total effect duration from the numeric keypad.

Press this button while holding down the SHIFT button ❺ to enter a keyframe duration from the numeric keypad.

❺ SHIFT button

Holding down this button while pressing one of the buttons with two function indications written on it (for example UNDEL and UNDO) carries out the upper function (for example UNDEL).

❻ Keyframe shift section

PREV KF (previous keyframe) button: Moves to the keyframe immediately before the position at which the effect is currently stopped.

NEXT KF (next keyframe) button: Moves to the keyframe immediately after the position at which the effect is currently stopped.

TC/GO TO KF (time code/go to keyframe) button: Press this button on its own to move to a keyframe whose number you enter from the numeric keypad. Press this button while holding down the SHIFT button ❺ to move to a position specified by entering a time code from the numeric keypad.

❼ Keyframe editing section

CLR (clear) WORK BUFF (buffer) button: Pressing this button once clears only the three-dimensional transformation parameters held in the working keyframe buffer. Pressing it immediately a second time clears the remainder of the information held in the working keyframe buffer, and returns it to the initial state. You can make the initial state in the setup menu *(see page 10-7)*.

The working keyframe buffer is an area of memory which holds the instantaneous state of the effect. While the effect is positioned on a keyframe, this corresponds to the contents of the keyframe, and while the effect is between keyframes, to a result of interpolation.

Pressing this button while holding down the SHIFT button ❺ in the keyframe operation section resets all parameter values in the active window displayed on the menu screen to their default values.

UNDEL/UNDO (undelete/undo) button: Pressing this button on its own returns the working keyframe buffer to the state before it was last overwritten. To remove a keyframe inserted with the BEFR/INS button, for example, press this button before carrying out any other operation.

This button affects operations with the BEFR/INS, DEL, MOD, KF /DUR EFF buttons.

Pressing this button while holding down the SHIFT button ❺ inserts the last deleted keyframe at the position where the effect is currently stopped.

DEL (delete) button: This deletes the current keyframe. If the effect is currently stopped between two keyframes, this deletes the immediately previous keyframe.

MOD (modify) ALL button: When amending, deleting or copying keyframes, you can specify the range of keyframes to which the operation applies.

For details of how to specify the range of keyframes to which the operation applies, see page 7-12.

MOD (modify) button: Rewrites the current keyframe to be the same as the current state of the working keyframe buffer. If the effect is currently stopped between two keyframes, this overwrites the immediately previous keyframe.

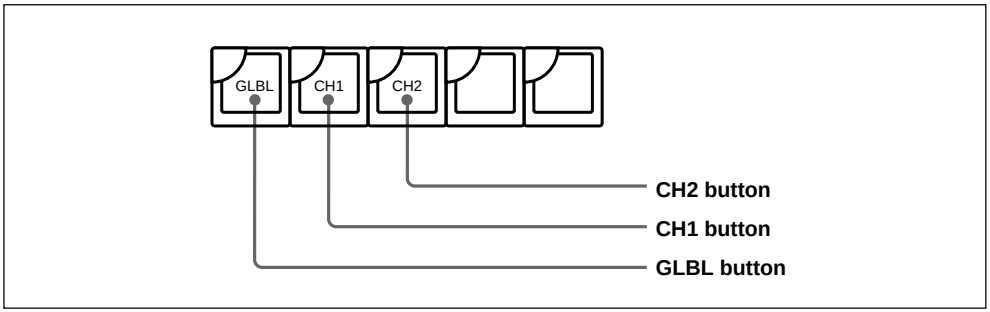
BEFR/INSRT (before/insert) button: Inserts the contents of the working keyframe buffer as a new keyframe.
Pressing this button on its own inserts the new keyframe after the current keyframe, if the effect is currently stopped on a keyframe.
Pressing this button while holding down the SHIFT button ❺ inserts the new keyframe before the current keyframe.
If the effect is stopped between keyframes, the new keyframe is inserted at the current position.

❽ Floppy disk drive

This accepts a 3.5-inch floppy disk for loading or saving the contents of registers. It is also used when upgrading the system to load new software from disk into the flash memory.
The indicator below and to the left of the floppy disk drive lights during a disk access.

Channel Selection Section

The channel selection section is used to select the channel or channels on which operations are carried out, and the reference channel.

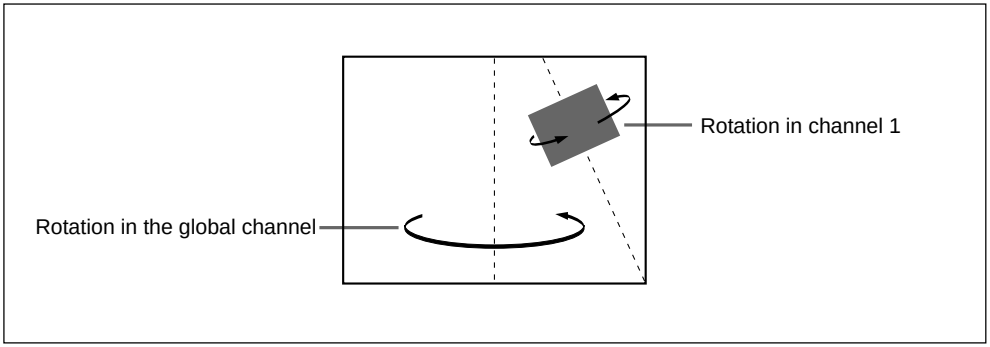


Channel selection section

Pressing the buttons in the channel selection section, turning them on, selects the active channel or channels to which menu operations and control panel operations apply. (More than one channel can be active simultaneously.)

GLBL (global) button: This selects the global channel. This channel is used for example when adding another movement on top of the image movements set up for channel 1. *(See figure below.)*

CH1 (channel 1) and CH2 (channel 2) buttons: These select channels 1 or 2 respectively.



Channel 1 and the global channel

The channel selection buttons have three states, with the following meanings:

Off: This channel is inactive, that is, not selected for operation.

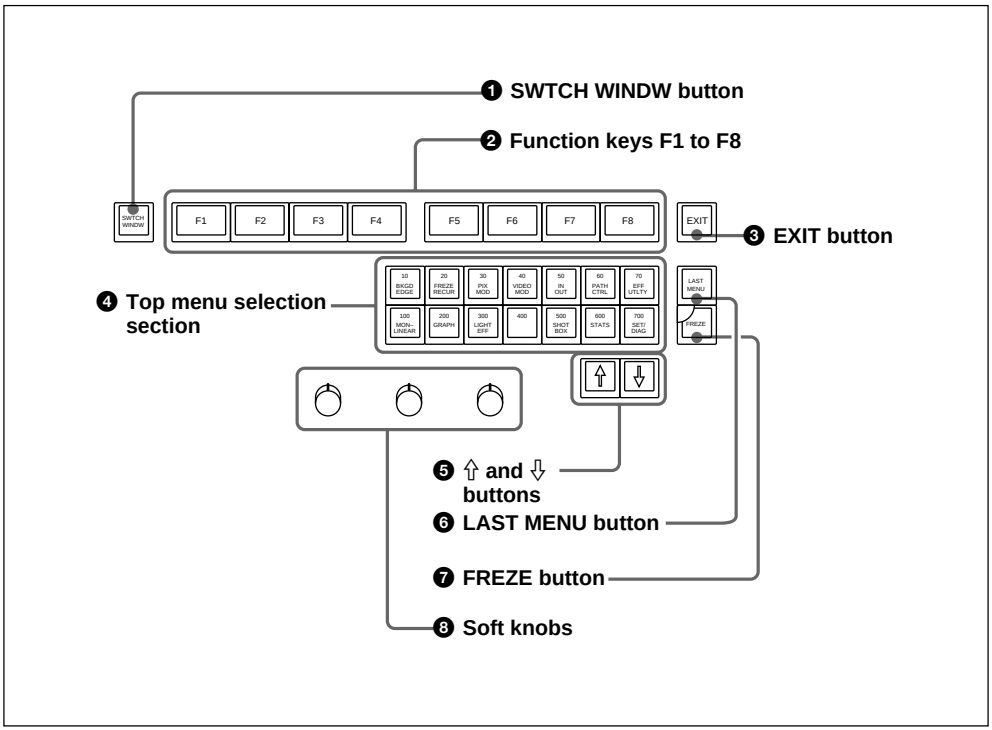
Lit green: This channel is the reference channel, that is, is active, and is the channel displayed for menu operations. There is always one channel which is the reference channel.

Lit red: This channel is active, but is not the reference channel. The buttons for all active channels other than the reference channel are always lit red.

- To make one channel only active, press the corresponding channel button. The button lights green, and the channel is then the reference channel.
- To make more than one channel active, hold down the button for the channel you wish to make the reference channel, and press the button or buttons for the other active channels.
  The button for the reference channel lights green, and the other active channel buttons light red.

Menu Operation Section

The menu operation section is used for carrying out menu operations on the menu monitor.



Menu operation section

❶ SWTCH WINDW (switch window)button

Pressing this button switches the active window on the menu monitor between the upper and lower windows. All settings take effect in the active window.

❷ Function keys F1 to F8

The function keys are used to make on/off selections, select operations, and change menus in the active window. The functions are displayed in corresponding boxes at the bottom of the menu monitor screen.

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❸ EXIT button
Pressing this button exits from the current menu, and returns one layer higher up the menu tree.
When there is a pop-up window on the screen, pressing this button selects "CANCEL".

❹ Top menu selection section
These fourteen buttons are marked with the names and page numbers of the top menus in each of the menu groups.
For example, the 10 BKGD EDGE button identifies the BKGD EDGE menu (page number 10), which has as submenus pages 11, 12 and so forth.
Pressing one of these buttons selects the most recently accessed of the menus in the corresponding menu group. Immediately pressing the button once more selects the top menu of the menu group.
It is also possible to set up the system so that you can select a desired top menu by pressing the corresponding top menu selection button only once *(see page 10-8)*.

❺ ⇧and⇩ buttons
These buttons are used to select the line of a menu screen on which items are to be selected or parameters adjusted.

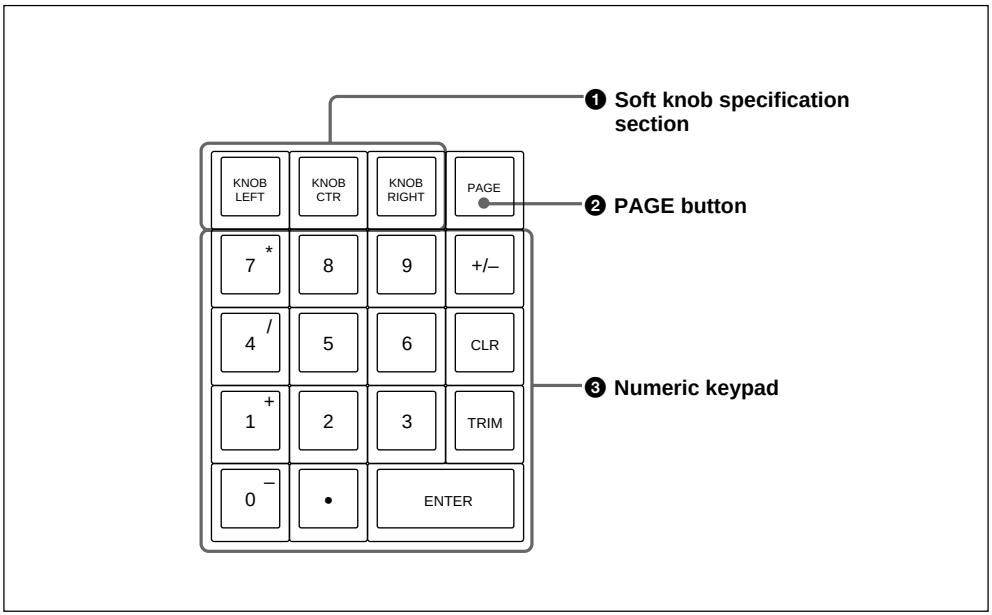
❻ LAST MENU button
Pressing this button recalls the menu displayed immediately previously in the active window.

❼ FREZE (freeze) button
Pressing this button instantaneously freezes the input video. The video image remains frozen until you press the button again.
The freeze mode (frame or field, and video or key) can be selected in the setup menu *(see page 10-16)*.
Note that toggling the freeze state on or off is not reflected in the keyframe data, and also that pressing the CLR WORK BUFF button does not release the freeze state.

❽ Soft knobs
These knobs adjust the values of a maximum of three parameters displayed in green on a menu screen.

Numeric Keypad Section

The numeric keypad section is used for operations relating to inputting numeric values.



Numeric keypad section

❶ Soft knob specification section

Pressing one of these buttons allows the numeric keypad to be used to enter a new value for the parameter controlled by the corresponding knob.
Double-clicking one of these buttons returns the corresponding parameter value to its default value.

❷ PAGE button

Pressing this button allows a menu page number to be entered from the numeric keypad. This switches the active window to the menu with the corresponding page number.

❸ Numeric keypad

0 to 9 buttons: Used to enter digits.

+/– button: Used to toggle the sign of an entered value.

CLR (clear) button: Press this button once to clear the entered value, and allow the value to be entered again. In this state, pressing the ENTER button immediately abandons the numeric input process, and the parameter returns to its previous value.

TRIM button: Press this button after entering a parameter value adjustment (that is, the difference from the previous value) to confirm the new value. If you press this button without entering a numeric value, the most recent adjustment value is added. (Because of the effects of rounding in numerical computations, repeatedly pressing the TRIM button may result in slightly different values being added.)

ENTER button: Confirms an entered numeric value. (Because of the effects of rounding in numerical computations, the value displayed may differ slightly from the entered value.) When there is a pop-up window on the screen, pressing this button selects "OK".

. (decimal point) button: Enters a decimal point. In a time code value, this is also used as the separator between minutes, seconds and frames. If the digits before the decimal point are all zero, you may omit them. Thus, "5..10" enters 5 minutes and 10 frames.

Additionally, if the value includes zero minutes, the initial "0." may be omitted. Thus for 6 seconds and 15 frames, entering "6.15" is sufficient.

Chapter 3
Three-Dimensional Transformations

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Moving in the Source Coordinate Frame 3-9
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Magnifying or Shrinking in the Source Coordinate Frame 3-21
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Transformation Basics

This section describes the basic procedures for carrying out three-dimensional transformations and the concepts of the coordinate spaces used.

When both the HKDS-7071 and HKDS-7061 are installed, you can carry out three- dimensional transformations on the DME 1 channel.
When only the HKDS-7061 is installed, three- dimensional transformations are not available.

Option configuration	**HKDS-7061 and HKDS-7071**		**HKDS-7061 only**
Channel	DME 1	DME 2	DME 2
Three-dimensional transformations	Available	Not available	Not available

Basic Procedure

Three-dimensional transformations are carried out principally using the transformation operation section of the control panel. Page numbers for more detailed explanations are given in parentheses.
Use the following procedure.

1 Use the channel selection section to select the channel to which the transformation is to apply.

2 Press one of the following buttons in the function allocation section, turning it on, to select the coordinate frame for the transformation. *(See page 3-4.)*
- Source coordinate frame: SRCE button
- Target coordinate frame: TRGT button

This assigns the trackball and Z-ring to transformation manipulation in the selected coordinate frame.

3 If necessary, press any of the following buttons to restrict the scope of the transformation.
- To restrict the transformation to particular axes: X, Y and Z buttons
- To restrict the trackball movement to orthogonal directions (i.e. along the x- or y-axis only): ORTHG button

4 Press one of the buttons in the transformation mode selection section, turning it on, according to the transformation you wish to carry out.

- To move the image: LOC XYZ button *(page 3-9)*
- To rotate the image: ROT button *(page 3-13)*
- To move the rotation axes: AXIS LOC button *(page 3-17)*
- To magnify or shrink the image: LOC SIZE button *(page 3-21)*
- To change the aspect ratio or perspective: ASP/SKEW/PERS button *(page 3-24)*

5 Operate the trackball or Z-ring to make the transformation, as follows.

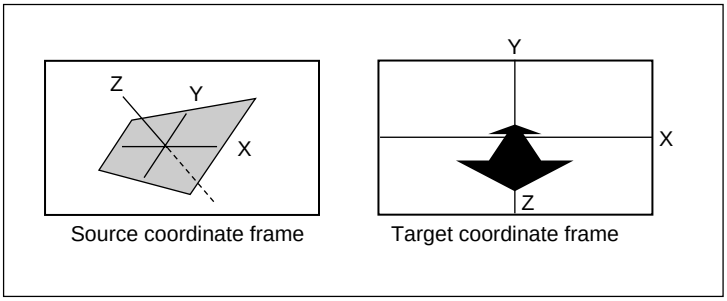
- To make an arbitrary two-dimensional movement, use the trackball.
- To move along the x-axis only, move the trackball to left or right.
- To move along the y-axis only, move the trackball up or down.
- To move along the z-axis, turn the Z-ring.
- To continue a transformation at a constant speed, hold down the VELO HOLD button.
- To make fine adjustments to the transformation, hold down the SEL/FINE button.

It is also possible to make a transformation without using the trackball or Z-ring, by entering x, y and z values from the numeric keypad. *(See page 3-6.)*

Source Coordinate Frame and Target Coordinate Frame

All three-dimensional manipulations of a video image take place in either the source coordinate frame or the target coordinate frame.

- The source coordinate frame is with respect to the original input video image. That is, as the video image is rotated, for example, the coordinates rotate with respect to the output video space.
- The target coordinate frame is with respect to the output video space. These coordinates are thus fixed independently of manipulation of the video image.



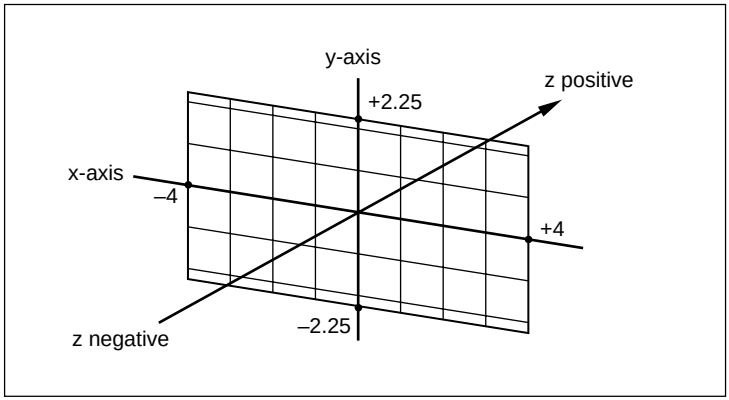
Source coordinate frame and target coordinate frame

Three-Dimensional Coordinates

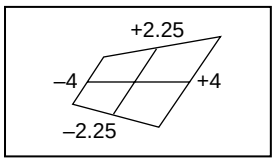
The figure below illustrates the x-, y- and z-coordinate values for each of the coordinate frames.

- In the source coordinate frame, the origin is at the center of the image, and the x- and y-coordinates range from –4 to +4 and –2.25 to +2.25 respectively over the area of the image.
- In the target coordinate frame, the origin is at the center of the output video space, and the x- and y-coordinates range from –4 to +4 and –2.25 to +2.25 respectively over the area of the output video space. When using a 4:3 aspect ratio screen, however, the ranges are x from –4 to +4 and y from –3 to +3.

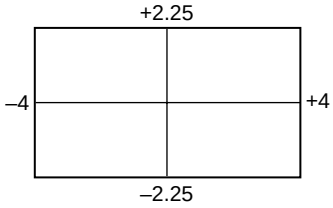
The limits for the x-, y- and z- coordinates are from –999 to +999.



X-, y-and z-coordinate values



Source coordinate frame



Target coordinate frame

Changing three-dimensional coordinate values with the numeric keypad

The coordinates for the reference channel are constantly displayed on the menu monitor. *(See page 4-4.)*
You can carry out a transformation by changing these values with the numeric keypad, without using the trackball or Z-ring.
Use the following procedure to set coordinate values.

1 Press one of the X, Y or Z buttons, turning it on.

2 Enter the coordinate value for the selected axis from the numeric keypad.

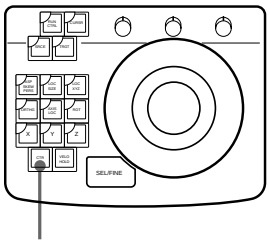
You can enter a value with up to four decimal places. It is also possible to enter a difference from the current value.

3 If you entered the new value, press the ENTER button.
If you entered a difference, press the TRIM button.

This changes the coordinate value, and the output video changes accordingly.

Detent positions and resetting

The three-dimensional axes have detent positions specified at regular intervals along them.
Pressing the CTR button sets a coordinate value to the closest detent.
Immediately pressing the CTR button once more, returns to the default value.



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Detent positions

The interval between successive detents depends on the transformation involved, as shown in the following table.

Function	Detent interval
Movement	1.0
Rotation	0.125 (45°)
Movement of rotation axes	1.0
Size change	0.25
Aspect ratio change	0.1
Perspective change	0.01

Resetting of parameter values set in the source coordinate frame

After setting up a three-dimensional transformation in the source coordinate frame, if you switch to the target coordinate frame the setting values in the source coordinate frame are converted to values in the target coordinate frame. When you switch back to the source coordinate frame, the original source coordinate frame values are reset to zeros.

Specializing the Effect of the Trackball and Z-Ring

You can restrict the axes controlled by the trackball and Z-ring, or constrain the way in which the image moves.

Restricting a transformation to particular axes

To restrict the effect of the trackball and Z-ring on the transformation to particular axes, press one or two of the X, Y and Z buttons, turning them on.

Restricting a transformation to orthogonal directions

To restrict the trackball movement to orthogonal directions (i.e. along the x- or y-axis only), press the ORTHG button, turning it on.

The image moves only in that of the x- and y-axes in which the trackball movement is greater.

Making fine adjustments

To make the trackball and Z-ring adjustments finer than normal, hold down the SEL/FINE button while carrying out the operation. You can vary the fineness from the TRACK BALL menu *(page 10-10).*

Carrying out a transformation at a constant speed

To continue a transformation at a constant speed, hold down the VELO HOLD button while turning the trackball or Z-ring.
The speed is detected, and then as long as you hold this button down the image continues to change at the same speed even after releasing the trackball or Z-ring.
In the TRACK BALL menu *(page 10-10)*, you can select whether the automatic speed is the same as the detected speed, or slower than the detected speed.

Other trackball and Z-ring settings

In addition to the above functions, you can change the relationship between the trackball and Z-ring movement and the movement of the image.

For details see the TRACK BALL menu on page 10-10.

Moving the Image

This section describes how to move the image in either the source or target coordinate frame.

Moving in the Source Coordinate Frame

Procedure

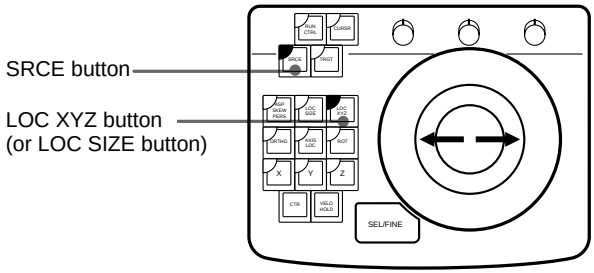
To move the image in the source coordinate frame, use the following procedure in the transformation operation section.

1 In the function allocation section, press the SRCE button, turning it on.

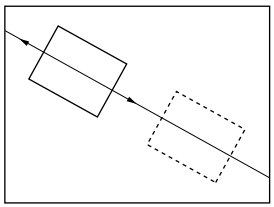
2 In the transformation mode selection section, press the LOC XYZ button, turning it on.
If you wish to move the image in the x- and y-directions only, pressing the LOC SIZE button has the same effect.

3 Move the trackball to move the image in the x- and y-directions.
Turn the Z-ring to move the image in the z-direction.

Moving along the x-axis

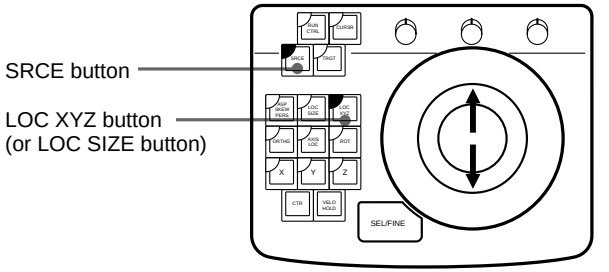


Control panel operation

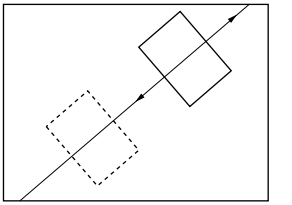


Video change

Moving along the y-axis

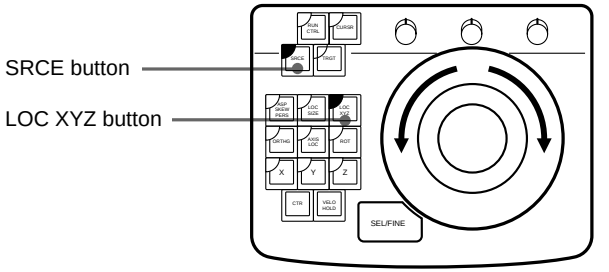


Control panel operation

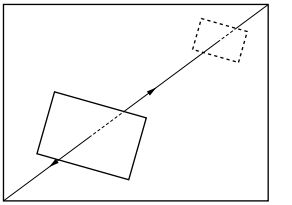


Video change

Moving along the z-axis



Control panel operation



Video change

Moving in the Target Coordinate Frame

Procedure

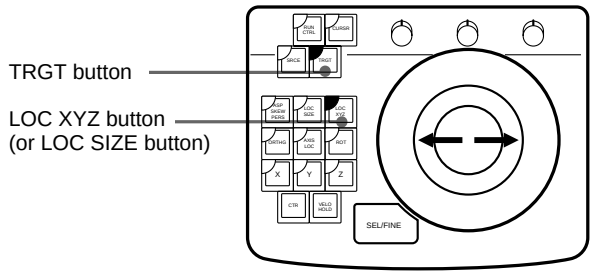
To move the image in the target coordinate frame, use the following procedure in the transformation operation section.

1 In the function allocation section, press the TRGT button, turning it on.

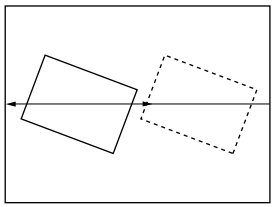
2 In the transformation mode selection section, press the LOC XYZ button, turning it on.
If you wish to move the image in the x- and y-directions only, pressing the LOC SIZE button has the same effect.

3 Move the trackball to move the image in the x- and y-directions.
Turn the Z-ring to move the image in the z-direction.

Moving along the x-axis

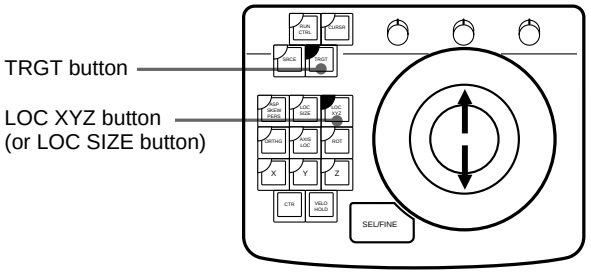


Control panel operation

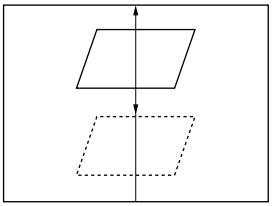


Video change

Moving along the y-axis

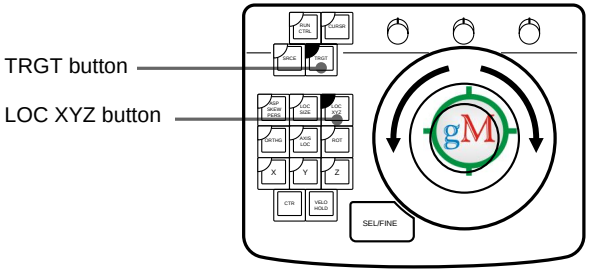


Control panel operation

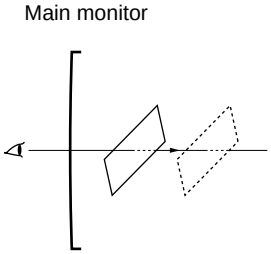


Video change

Moving along the z-axis



Control panel operation



Video change

Rotating the Image

This section describes how to rotate the image in either the source or target coordinate frame.
When creating an effect involving continuous rotation of the image, use the spin function to specify the number of rotations.

For details of the spin function, see pages 3-28 and 9-3.

Rotating in the Source Coordinate Frame

Procedure

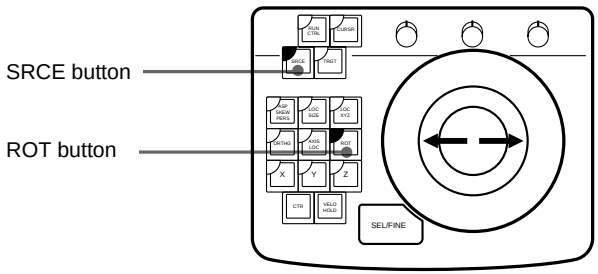
To rotate the image in the source coordinate frame, use the following procedure in the transformation operation section.

1 In the function allocation section, press the SRCE button, turning it on.

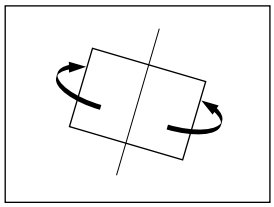
2 In the transformation mode selection section, press the ROT button, turning it on.

3 Move the trackball to rotate the image about the x- and y-axes. Turn the Z-ring to rotate the image about the z-axis.

Rotating about the y-axis

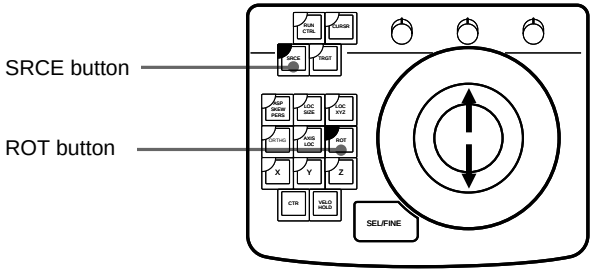


Control panel operation

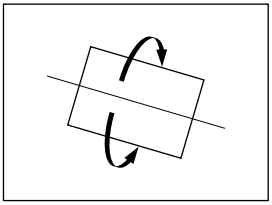


Video change

Rotating about the x-axis

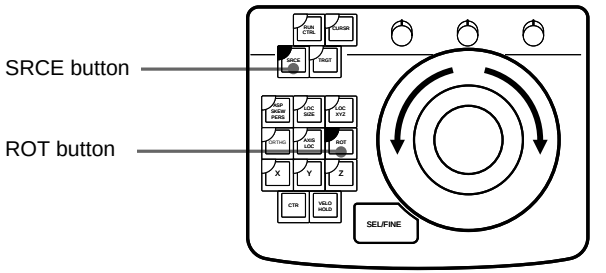


Control panel operation

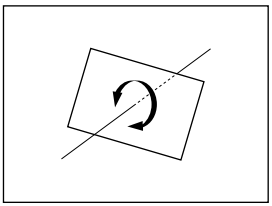


Video change

Rotating about the z-axis



Control panel operation



Video change

Rotating in the Target Coordinate Frame

Procedure

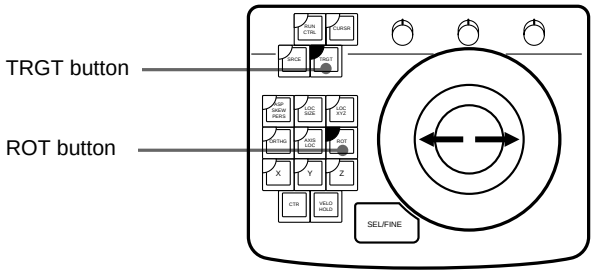
To rotate the image in the target coordinate frame, use the following procedure in the transformation operation section.

1 In the function allocation section, press the TRGT button, turning it on.

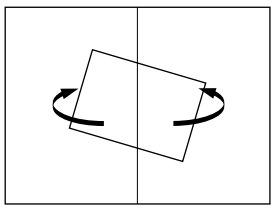
2 In the transformation mode selection section, press the ROT button, turning it on.

3 Move the trackball to rotate the image about the x- and y-axes. Turn the Z-ring to rotate the image about the z-axis.

Rotating about the y-axis

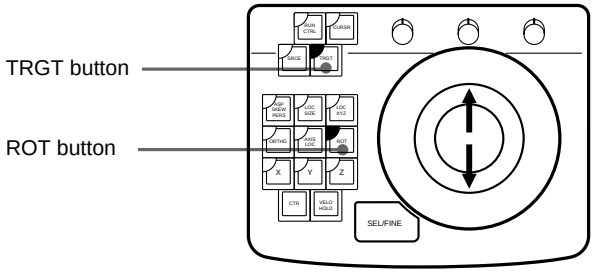


Control panel operation

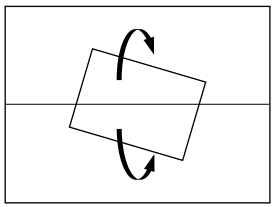


Video change

Rotating about the x-axis

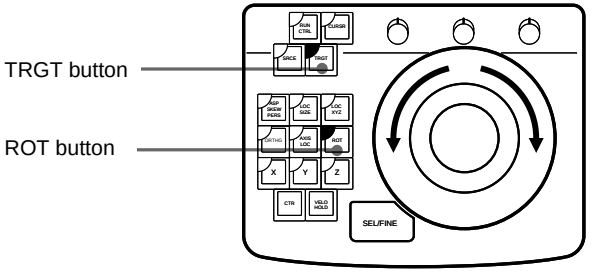


Control panel operation

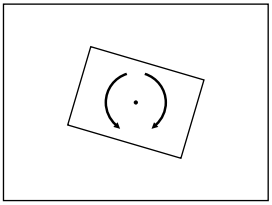


Video change

Rotating about the z-axis



Control panel operation



Video change

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Moving the Axes of Rotation

This section describes how to move the axes of rotation in either the source or target coordinate frame.

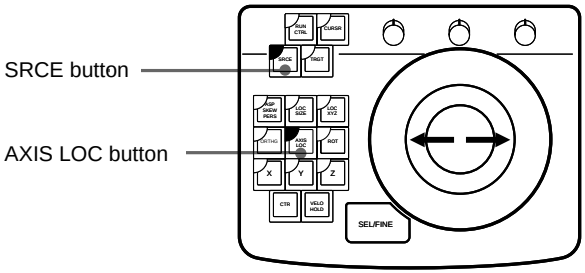
Moving the Axes of Rotation in the Source Coordinate Frame

Procedure

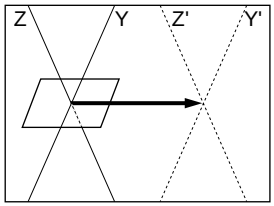
To move the axes of rotation in the source coordinate frame, use the following procedure in the transformation operation section.

1. In the function allocation section, press the SRCE button, turning it on.
2. In the transformation mode selection section, press the AXIS LOC button, turning it on.
3. Move the trackball to move the axes of rotation in the x- and y-directions.
   Turn the Z-ring to move the axes of rotation in the z-direction.

Moving along the x-axis

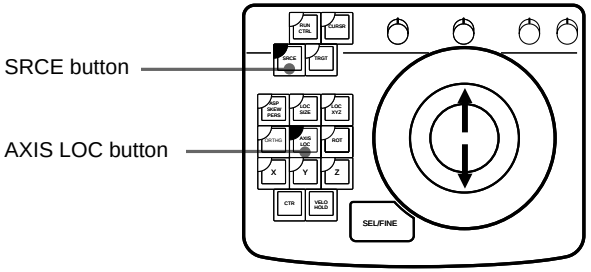


Control panel operation

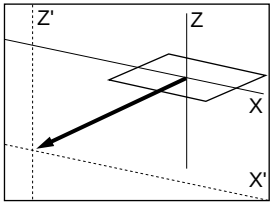


Video change

Moving along the y-axis

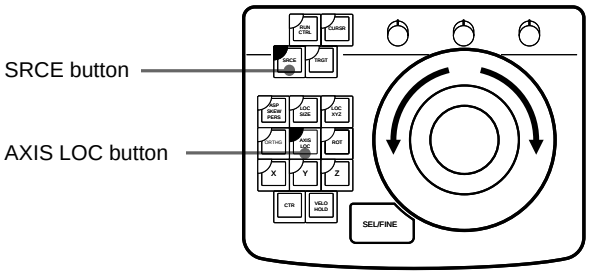


Control panel operation

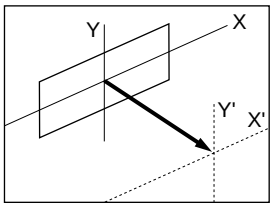


Positional change

Moving along the z-axis



Control panel operation



Positional change

Note

After changing the LOC SIZE and ROT settings in the target coordinate frame, if you switch to the source coordinate frame and move the axis of rotation, the image itself also moves.

Moving the Axes of Rotation in the Target Coordinate Frame

Procedure

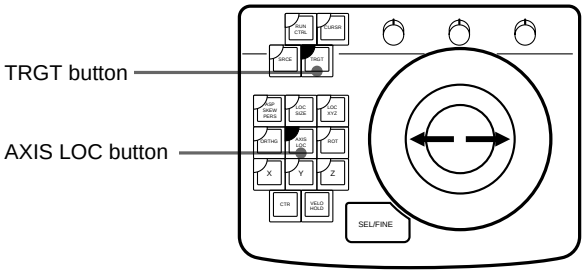
To move the axes of rotation in the target coordinate frame, use the following procedure in the transformation operation section.

1 In the function allocation section, press the TRGT button, turning it on.

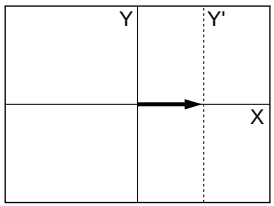
2 In the transformation mode selection section, press the AXIS LOC button, turning it on.

3 Move the trackball to move the axes of rotation in the x- and y-directions.
Turn the Z-ring to move the axes of rotation in the z-direction.

Moving along the x-axis

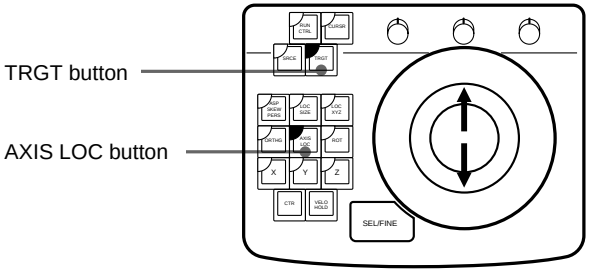


Control panel operation

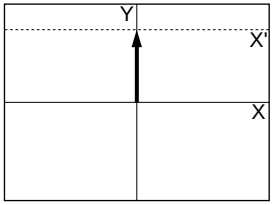


Video change

Moving along the y-axis

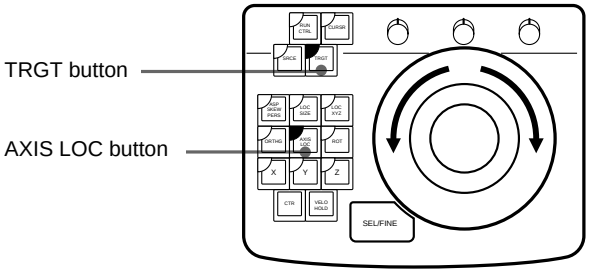


Control panel operation

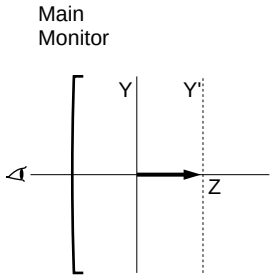


Positional change

Moving along the z-axis



Control panel operation



Positional change

Magnifying or Shrinking the Image

This section describes how to magnify or shrink the overall image in either the source or target coordinate frame.

Magnifying or Shrinking in the Source Coordinate Frame

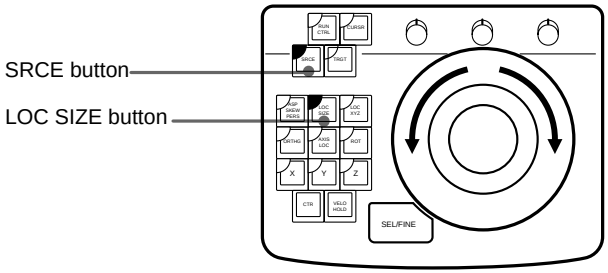
Magnifying or shrinking the image

To magnify or shrink the image in the source coordinate frame, use the following procedure in the transformation operation section.

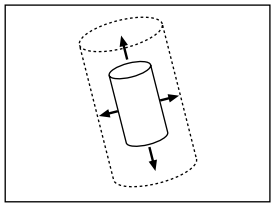
1 In the function allocation section, press the SRCE button, turning it on.

2 In the transformation mode selection section, press the LOC SIZE button, turning it on.

3 Turn the Z-ring clockwise to magnify or counterclockwise to shrink the image.



Control panel operation



Video change

Magnifying or Shrinking in the Target Coordinate Frame

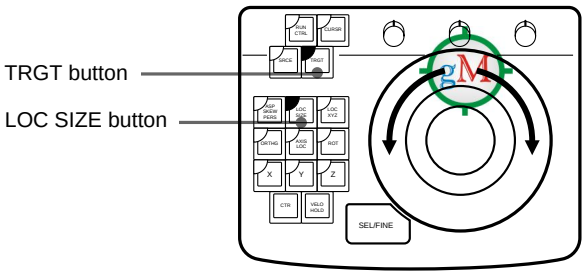
Magnifying or shrinking the image

To magnify or shrink the image in the target coordinate frame, use the following procedure in the transformation operation section.

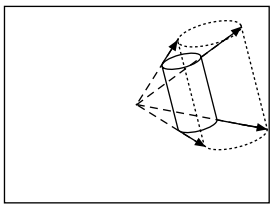
1 In the function allocation section, press the TRGT button, turning it on.

2 In the transformation mode selection section, press the LOC SIZE button, turning it on.

3 Turn the Z-ring clockwise to magnify or counterclockwise to shrink the image.



Control panel operation



Video change

Changing the Skew, Aspect Ratio or Perspective of the Image

This section describes how to change the skew, aspect ratio or perspective of the image.

Changing the Skew or Aspect Ratio of the Image

Procedure

To change the skew or aspect ratio of the image, use the following procedure in the transformation operation section.

1 In the function allocation section, press the SRCE button, turning it on.

2 In the transformation mode selection section, press the ASP/SKEW/PERS button, turning it on.

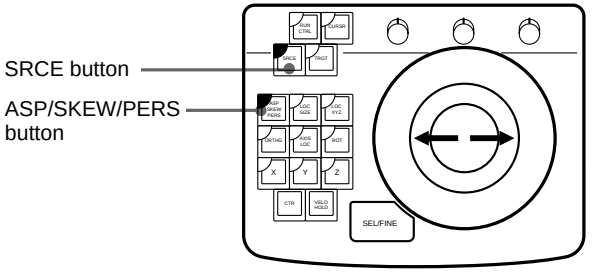
3 Move the trackball in the x- and y-directions to change the skew of the image.
Turn the Z-ring to change the aspect ratio.

Note

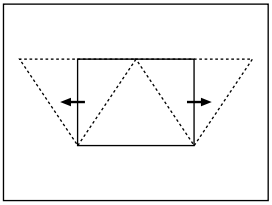
It is also possible to set up the trackball so that when the ASP/SKEW/PERS button is lit, movement in the x- or y-direction only changes the aspect ratio. If, with this setting made, you wish to change the skew using the trackball, press the ASP/SKEW/PERS button turning it on while holding down the SHIFT button in the keyframe operation section in step **2** of the above procedure.

For details see the TRACK BALL menu on page 10-10.

Changing the skew

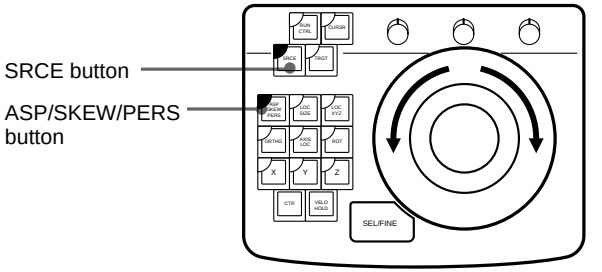


Control panel operation
(movement in the y-direction also possible)

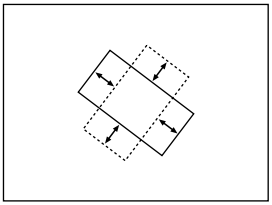


Video change

Changing the aspect ratio (changing x- and y-directions together)



Control panel operation



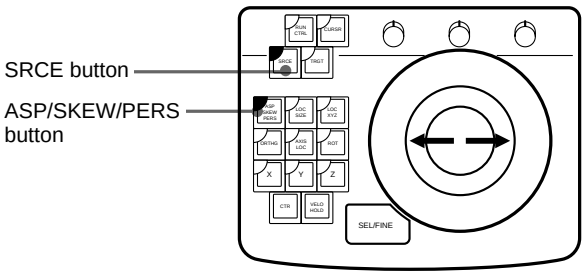
Video change

Changing the aspect ratio (changing x- and y-directions independently)

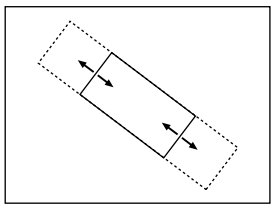
To adjust the aspect ratio by changing both x- and y-dimensions of the image independently, either set the action of the trackball with the ASP/SKEW/PERS button in the transformation mode selection section lit to be “XY ASPECT” or press the ASP/SKEW/PERS button turning it on while holding down the SHIFT button in the key frame operation section.

For details see the TRACK BALL menu on page 10-10.

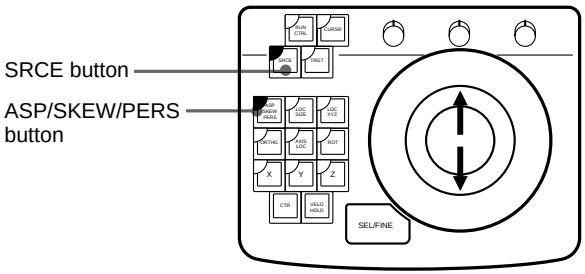
Even when you make this “XY ASPECT” setting, it is still possible also to use the Z-ring to change the aspect ratio.



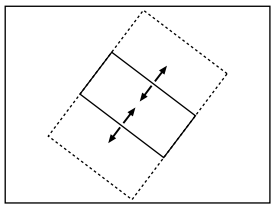
Control panel operation



Video change



Control panel operation



Video change

Changing the Perspective of the Image

By moving the virtual viewpoint of the image along the z-axis (in the target coordinate frame), you can change the apparent perspective of the image.

Procedure

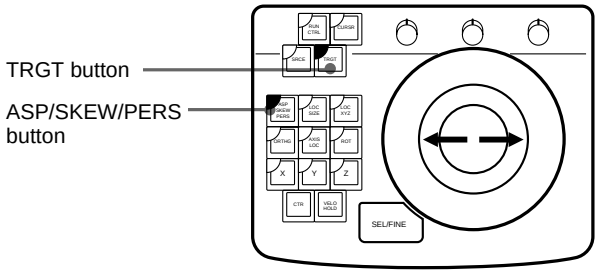
To change the perspective of the image, use the following procedure in the transformation operation section.

1 In the function allocation section, press the TRGT button, turning it on.

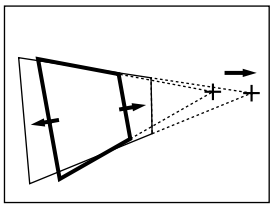
2 In the transformation mode selection section, press the ASP/SKEW/PERS button, turning it on.

3 Use the trackball to move the viewpoint in the x- and y-directions.
Turn the Z-ring to change the perspective in the z-direction.

Moving the viewpoint in the x-direction



Control panel operation



Change in viewpoint position

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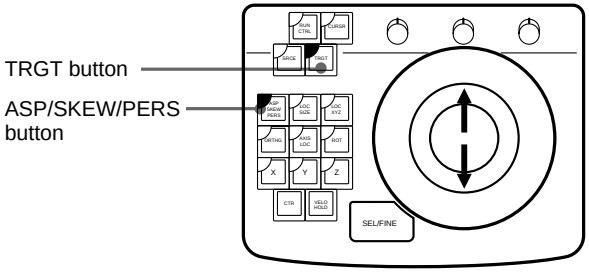
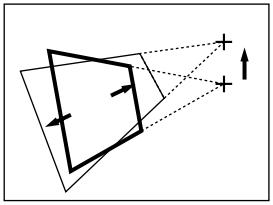
Moving the viewpoint in the y-direction

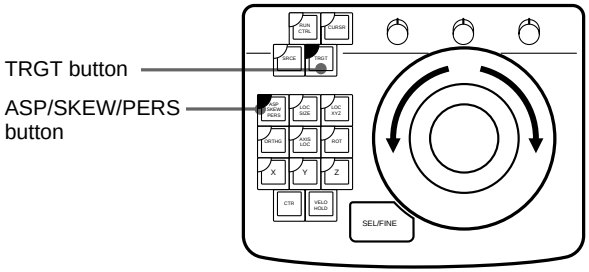


Control panel operation

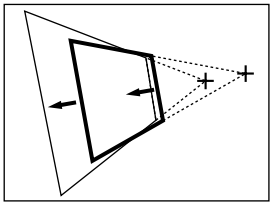


Change in viewpoint position

Changing the perspective



Control panel operation



Change in the perspective

Setting the Number of Rotations (Spin Function)

When creating an effect involving rotation of the image, you can use the spin function to specify the number of rotations of the image. Using the ROT button in normal rotation mode, the image may not rotate correctly about the required axis, but using the spin function you can create effects in which the image rotates about a specified axis.

Use the following procedure to use the spin function to specify the number of rotations of the image.

1 To set the number of rotations in the source coordinate frame, press the SRCE button in the function allocation section, turning it on.
To set the number of rotations in the target coordinate frame, press the TRGT button in the function allocation section, turning it on.

2 Carry out either of the following operations.
- Hold down the SHIFT button in the key frame operation section, and press the ROT button in the transformation mode selection section.
- In the 3D TRANSFORM menu (menu page 601), press F7 (SPIN), turning it on.

For details of menu operations, see Chapter 4. For specific details of the 3D TRANSFORM menu, see page 9-3.

3 To cause a spin about the x- or y-axis, turn the trackball.
To cause a spin about the z-axis, turn the Z-ring.

To exit from the spin function, press F7 (SPIN), turning it off, or press one of the buttons in the transformation mode selection section.

Chapter 4
Menu Operations

Menu Tree 4-2
Menu Display and Basic Operations 4-4
Menu Display 4-4
Basic Menu Screen Operations 4-5
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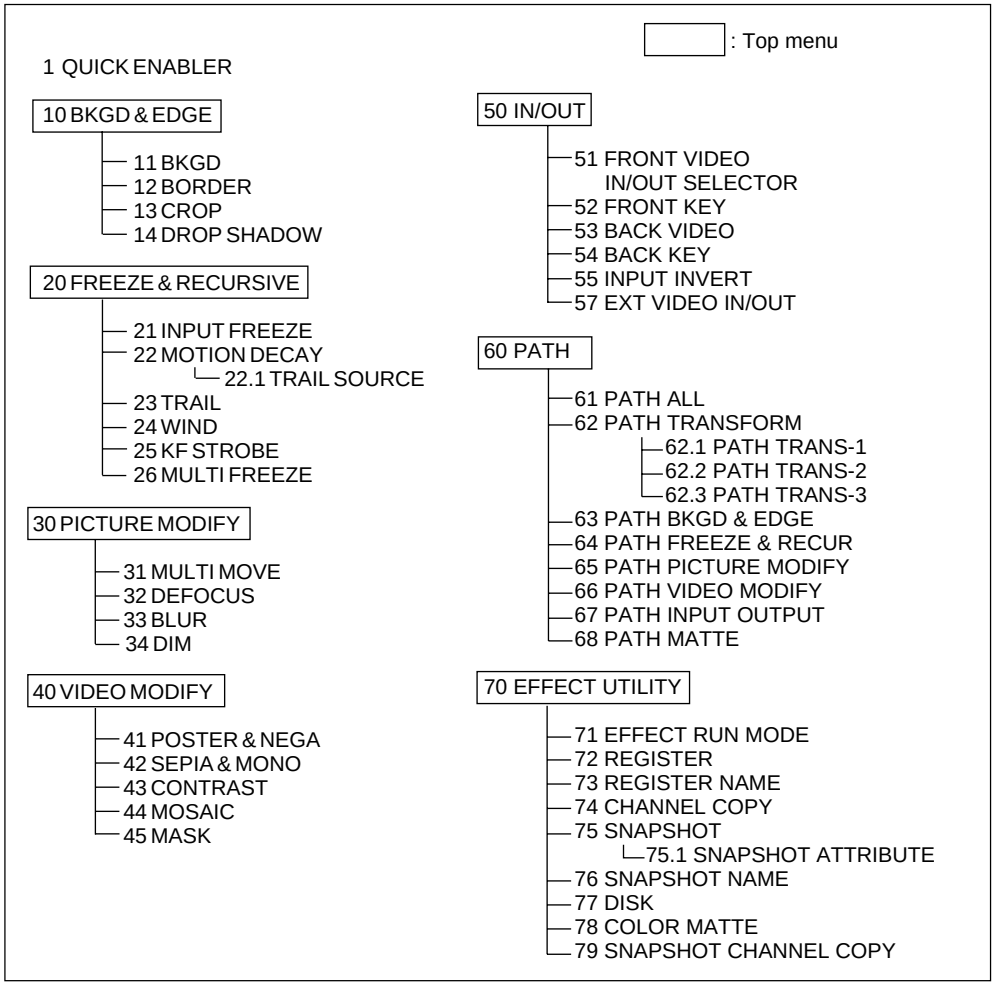
Example Screen 4-8
Basic Operations in the Initial Screen 4-8
Top Menu Screens 4-9
Example Screen 4-9
Basic Operations in a Top Menu 4-10
Parameter Setting Screens 4-11
Example Screen 4-11
Basic Operations in a Parameter Setting Screen 4-12

Menu Tree

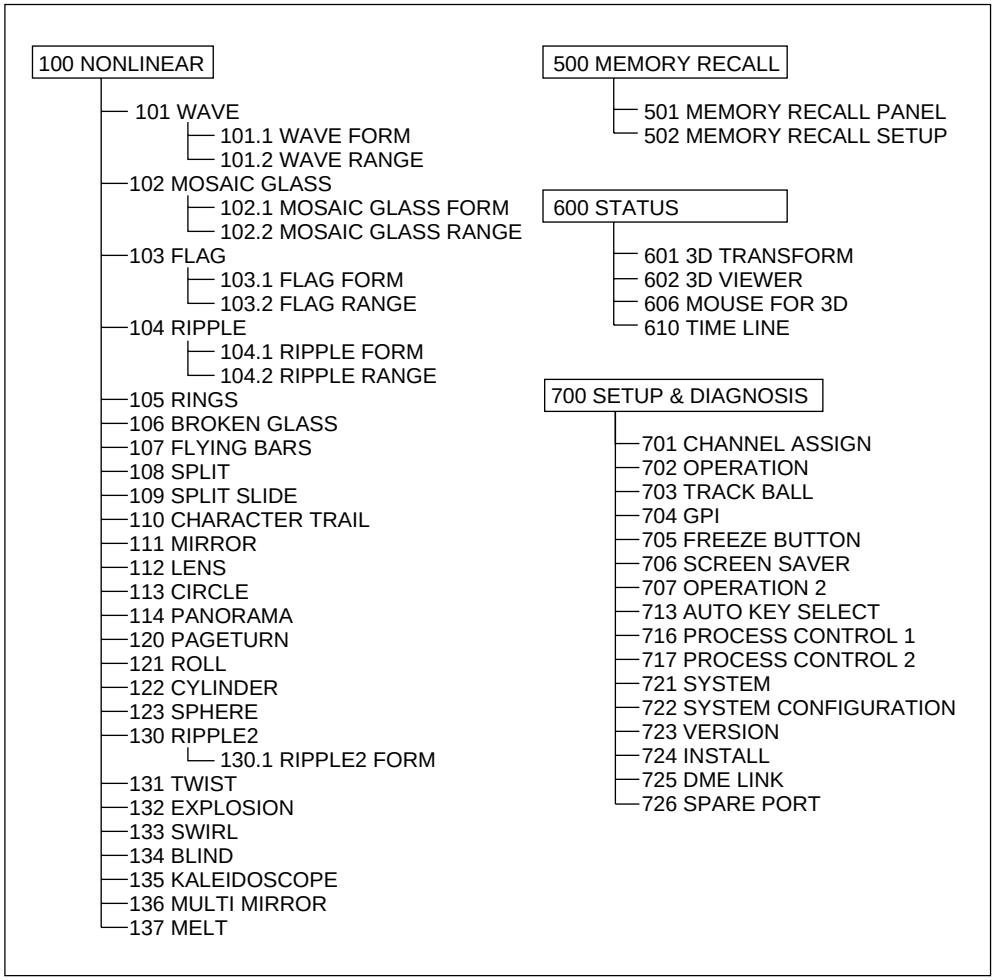
The menus used on the internal DME are divided into groups, as shown in the following figures, each group being organized in a hierarchical structure as a menu tree; the root of the tree is referred to as a top menu. Top menus are shown enclosed in a box. Each menu is also assigned a number, which is referred to as a page number.
Note that to access some of the menus shown below requires a particular option board to be installed.

Menu trees



(Continued)

Menu trees (Continued)

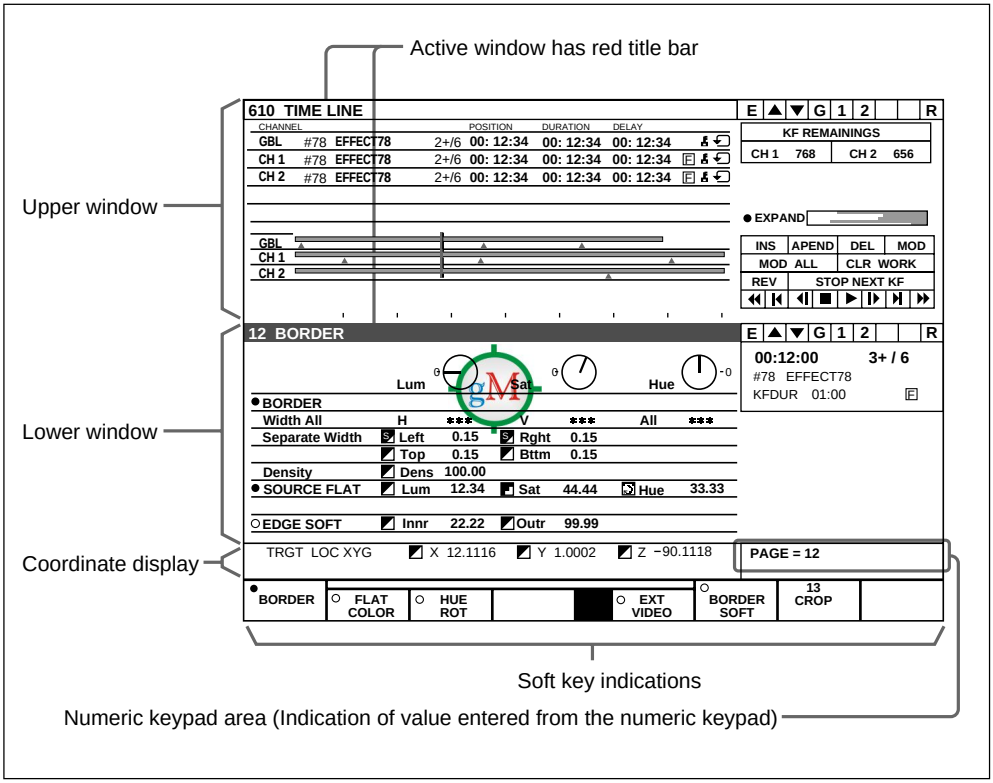


Menu Display and Basic Operations

This section describes the organization of the menu display and the basic menu operations.

Menu Display

The menu display is organized as shown in the following figure.



Menu display organization

Basic Menu Screen Operations

Clicking on an item

Menu selections are made by “clicking” on the required item. Use either of the following procedures to click on a particular item.

Using the SEL/FINE button

Use the following procedure.

1 In the transformation operation section of the control panel, press the CURSR button, turning it on.

This allocates the trackball and Z-ring to cursor movement.

2 Move the trackball to position the cursor over the required item.

3 Press the SEL/FINE button.

Using the mouse

If you have a mouse connected to the SPARE connector on the rear of the control panel, you can use the mouse to position the cursor, and click with the left mouse button.

Switching active windows

The menu screen has two windows, arranged one above the other; the active window, that is the one which accepts button input, is indicated by a blue title bar.
Use either of the following methods to switch the active window.
• Click on any point inside the non-active window.
• Press the SWTCH WINDW button on the control panel.

Selecting soft key items

The soft key indications comprise eight boxes, which show functions or menus selectable from the active window. Use either of the following methods to select a soft key option.

- Click on the box.
- Press the function key of the corresponding number.

Some soft key indications have an indicator in the upper left corner of the box. For these indications, when the function is enabled, or on, the indicator turns red.

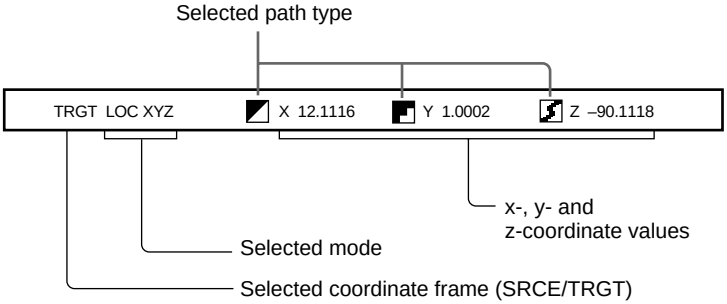
Bringing up a menu in the active window

You can use any of the following techniques to bring up a required menu in the active window.

- To access a menu shown in one of the soft key indications, click on the box, or press the corresponding function key.
- Press a button in the top menu selection section.
- Press the PAGE button in the numeric keypad section, then enter the page number from the numeric keypad. Using this method you can directly access any menu, even in a different menu group.
- Click on the ▲ or ▼ indication to step through the menus by page number.

Setting coordinate values

Above the soft key indications are displayed the three-dimensional coordinate values for the reference channel selected in the active window.



To change a coordinate value, either carry out a transformation using the trackball and Z-ring, or press one of the X, Y and Z buttons, and enter the value from the numeric keypad.

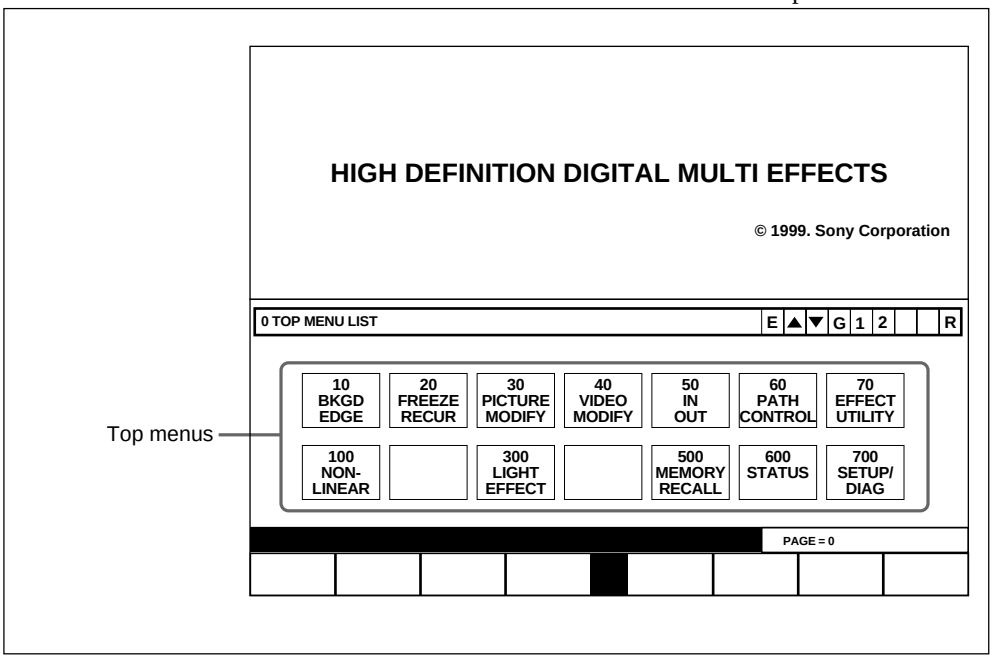
For details see Chapter 3 “Three-Dimensional Transformations”.

Initial Screen

This section describes the menu screen immediately after the system is started up.

Example Screen

When the system is powered on, an initial screen appears on the menu monitor.
This shows the software version and the list of top menus.



Initial screen

Basic Operations in the Initial Screen

Accessing a top menu

To access one of the top menus shown, either click on the screen indication, or press the corresponding button in the top menu selection section.

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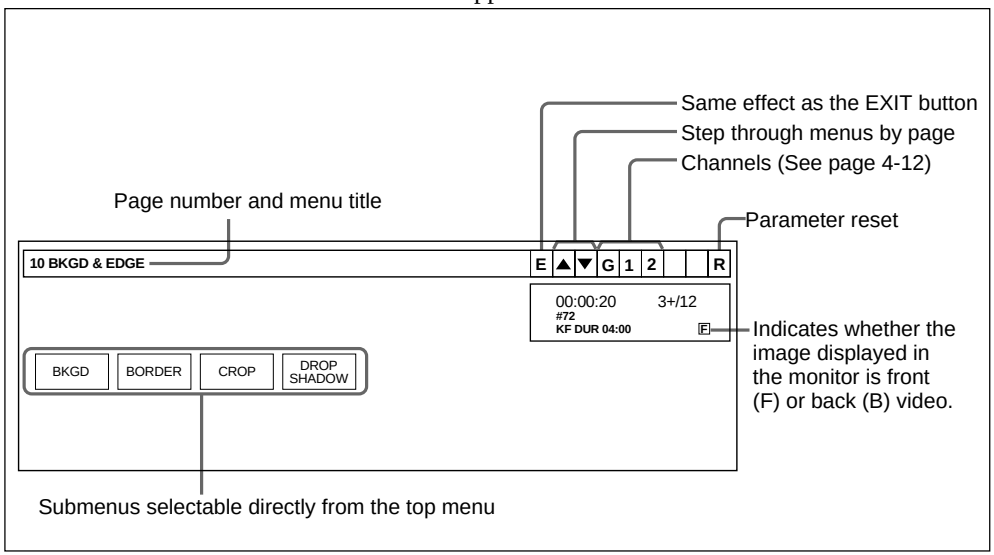
Top Menu Screens

This section shows an example top menu screen, and describes the basic operations you can make from it.

Example Screen

When you select the top menu of a menu group, a menu like the one shown below appears in the active window.



Example top menu screen (BKGD & EDGE menu)

Basic Operations in a Top Menu

The following operations are the same as on a parameter setting screen *(see the next page)*.

Accessing other menus

You can use any of the following techniques to access another menu from the menu displayed in the active window.

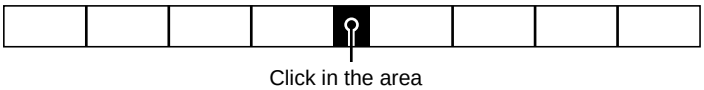
- To access a menu shown in one of the soft key indications, click on the box, or press the corresponding function key.
- Press the PAGE button in the numeric keypad section, then enter the page number from the numeric keypad.
- Click on the ▲ or ▼ indication to step through the menus by page number.

To access the menu one level up the tree

You can use any of the following techniques to access the menu one level up the tree from the menu displayed in the active window.

- Press the EXIT button or click on the “E” in the menu.
- Click in the area between F4 and F5 of the soft key indications.

(You cannot use these techniques in the top menus.)



- When a mouse is connected, click the right mouse button.
- To access “TOP MENU LIST” (page 0), press the PAGE button in the numeric keypad section, and enter 0.

To return to the previously displayed menu

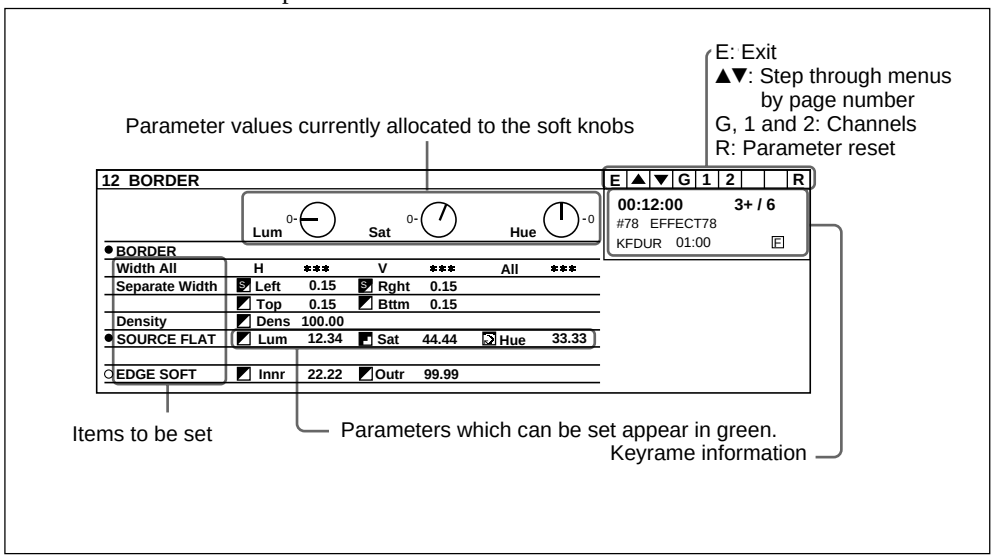
Independently of the hierarchical menu structure, to return to the menu previously displayed in the active window, press the LAST MENU button in the menu operation section.

Parameter Setting Screens

The menus accessed from the top menus allow you to set various parameters and carry out other operations. This section shows an example screen, and describes the basic operations you can make from it.

Example Screen

In a menu accessed from the top menu you can set various parameters and toggle functions on and off, among other operations.


E: Exit
▲▼: Step through menus by page number
G, 1 and 2: Channels
R: Parameter reset
Parameter values currently allocated to the soft knobs
12 BORDER
E ▲ ▼ G 1 2 R
Lum
Sat
Hue
00:12:00 3+ / 6
#78 EFFECT78
KFDUR 01:00
BORDER
Width All H *** V *** All ***
Separate Width Left 0.15 Rght 0.15
Top 0.15 Bttm 0.15
Density Dens 100.00
SOURCE FLAT Lum 12.34 Sat 44.44 Hue 33.33
EDGE SOFT Innr 22.22 Outr 99.99
Items to be set
Parameters which can be set appear in green.
Keyrame information

Example parameter setting screen (BORDER menu)

Basic Operations in a Parameter Setting Screen

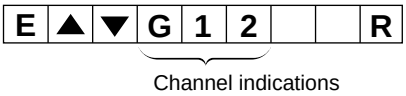
Channel selection

The channel indication on the screen is linked to the selection made in the channel selection section of the control panel; changing the selection in one place is always reflected in the other. Use the following procedure to make a channel selection by a menu operation.

For details of channel selection using the buttons in the channel selection section, see page 2-10.

Selecting a single channel

Click on the desired channel indication.



The channel number on which you just clicked turns green: this makes the channel active, and at the same time it becomes the reference channel. The most recently clicked channel is always the reference channel.
Other channels indicated in white are inactive.

Selecting more than one channel

• Using the control panel:
Use the following procedure.

1 Align the cursor with the indication for the channel you wish to make the reference channel, and press and hold down the SEL/FINE button.

The selected channel indication turns green, and this becomes the reference channel.

2 With the SEL/FINE button still held down, turn the trackball to align the cursor with the indication for the other channel you wish to make active, then release the SEL/FINE button.

The second selected channel indication turns red, indicating that it is also active.

• Using the mouse:
Use the following procedure.

1 Align the cursor with the indication for the channel you wish to make the reference channel, and press and hold down the left mouse button.

The selected channel indication turns green, and this becomes the reference channel.

2 With the left mouse button held down, drag the cursor to the indication for the other channel you wish to make active, then release the left mouse button.

The second selected channel indication turns red, indicating that it is also active.

Setting parameter values

There are five different ways to set the value of a parameter displayed on the screen.
These are described below, taking as an example the “Lum” parameter for SOURCE FLAT in the screen shown on page 4-11.
The descriptions of operations in Chapter 5 and subsequent chapters refer only to making settings with the soft knobs.

Using the soft knobs

Use the following procedure.

1 Use the ⇧ and ⇩ buttons, to display the SOURCE FLAT line in green.

2 Turn the left knob to adjust the luminance value.

Using the numeric keypad

Use the following procedure.

1 Use the ⇧ and ⇩ buttons, to display the SOURCE FLAT line in green.

2 Press the KNOB LEFT button in the numeric keypad section.

3 Enter the value for the luminance using the numeric keypad. You can alternatively enter a trim value, that is, the difference from the current value.

Using a cursor click and the numeric keypad

Use the following procedure.

1 Click on the “Lum” item.

2 Enter the value for the luminance using the numeric keypad. You can alternatively enter a trim value, that is, the difference from the current value.

Using the Z-ring

Use the following procedure.

1 Align the cursor on the “Lum” item. (A click is not necessary.)

2 Turn the Z-ring to adjust the luminance value.

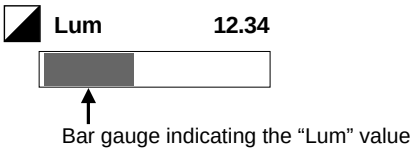
Using the mouse

Use the following procedure.

1 Move the mouse to place the cursor on the “Lum” item.

2 Hold down the left mouse button, and drag the mouse down.

The cursor is replaced by a bar gauge for the “Lum” value.



3 Drag the mouse to the right or left to increase or decrease the setting respectively.

Resetting parameters to their default values

For example, to return the “Lum” parameter of the “SOURCE FLAT” item in the menu shown on page 4-11 to its default value you can use either of the following methods.

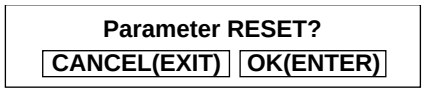
- **Using the control panel:** Display the “SOURCE FLAT” line in green, then double-click on the corresponding button in the soft knob specification section of the numeric keypad, the KNOB LEFT button.
- **Using the mouse:** Place the cursor on the “Lum” parameter, then double-click the left mouse button.

Resetting all parameters in a single menu

To reset all parameters in the menu displayed in the active window to their default values, use the following procedure, with either the control panel or the mouse.

1 Click on the “R” in the upper right corner of the menu, or hold down the SHIFT button and press the CLR WORK BUFF button.

A pop-up window appears as follows.



2
- To carry out the reset, click on the “OK” in the pop-up window, or press the ENTER button.
- To cancel the operation, click on the “CANCEL” in the pop-up window, or press the EXIT button, or press the right mouse button.

Copying parameters

It is possible to copy sets of parameter values from one menu to another. This function is useful, for example, when you wish to make two color mattes have exactly the same settings.
As an example, use the following procedure to copy the settings for the “SOURCE FLAT” item in the BKGD menu to the BORDER menu.

Using the control panel

1 In the BKGD menu, use the ⇧ and ⇩ buttons to display the “SOURCE FLAT” line in green.

2 Holding down the SHIFT button, press the ENTER button.

The message “Copied” appears, and this saves the three parameter values in a buffer memory.

3 Access the BORDER menu, and use the ⇧ and ⇩ buttons to display the “SOURCE FLAT” line in green.

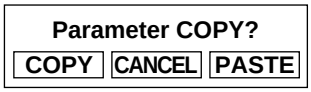
4 Holding down the SHIFT button, press the buttons in the soft knob specification section of the numeric keypad.
- To copy the value for the “Lum” parameter only, press the KNOB LEFT button.
- To copy the three parameters (“Lum”, “Sat” and “Hue”), press all three buttons.

Using the mouse

1 In the BKGD menu, align the cursor on any of the parameters (“Lum”, “Sat” or “Hue”) for the “SOURCE FLAT” item, and press the left mouse button.

2 Holding down the left mouse button, drag the cursor rightward or leftward and release the left mouse button.

The following pop-up window appears.



3 Click on “COPY” in the pop-up window.

This copies the values for all three of the “SOURCE FLAT” parameters into a buffer memory.

4 Access the BORDER menu, and click on the parameter for the “SOURCE FLAT” item to which you wish to copy the saved value. To select more than one parameter, drag the mouse to the other required parameters.

The same pop-up window appears as in step **2**.

5 Click on “PASTE” in the pop-up window.

This copies the values in the buffer memory (from the BKGD menu) to the selected parameter or parameters in the BORDER menu.

To abandon the copy operation
Click on “CANCEL” in the pop-up window.

Accessing other menus

To access other menus, including the menu one level up the tree, use the same procedure as from a top menu.

For details see page 4-10.

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Chapter 5
Special Effects Operations

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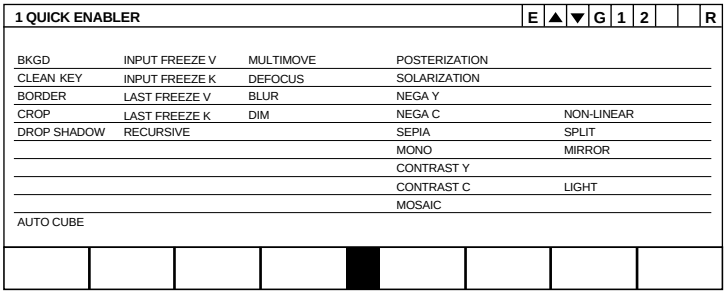
Quick Enabler

Using the QUICK ENABLER menu, you can directly switch on and off settings for effects.

QUICK ENABLER Settings – 1

Use the PAGE button in the numeric keypad section together with the numeric buttons, or click "▲" or "▼" in the top right corner of the menu screen, to select menu page 1 and display the QUICK ENABLER menu.



QUICK ENABLER menu display

Changing settings

Align the cursor with the item (effect) you wish to change, and click to toggle the setting on and off.

For details of each item, see the page number in the following table.

Item	See page
BKGD (background)	5-11
CLEAN KEY	5-12
BORDER	5-13
CROP	5-16
DROP SHADOW	5-18
AUTO CUBE	5-5

(Continued)

(Continued)

Item	See page
INPUT FREEZE V (video input freeze)	5-22
INPUT FREEZE K (key input freeze)	5-22
LAST FREEZE V (video last freeze)	5-22
LAST FREEZE K (key last freeze)	5-22
RECURSIVE	5-24
MULTI MOVE	5-35
DEFOCUS	5-36
BLUR	5-37
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POSTERIZATION	5-40
SOLARIZATION	5-40
NEGA Y (negative luminance)	5-41
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SEPIA	5-42
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CONTRAST Y (luminance contrast)	5-43
CONTRAST C (chrominance contrast)	5-43
MOSAIC	5-45
NON-LINEAR	5-48
SPLIT	5-62
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Auto Cube Function

Using the auto cube function to move or rotate any parallelepiped (six faced solid with all opposite faces parallel) such as a cubic or slab, you can automatically carry out the switch between front and back video. Since you can use one image to provide a pair of opposite faces, you can create a symmetrical solid with the minimum number of channels or edit operations.
This section describes how to create a cube or slab, and move or rotate it using the auto cube function.

Number of Channels

To create a cube, since a maximum of three faces are visible at any one time three channels are required.

Even though the internal DME has only one channel for moving or rotating of the image, it is still possible to use the Auto Cube function with multi-pass editing: two passes when only two faces are visible simultaneously, and three passes if all three faces are visible.

Creating, Moving, and Rotating a Cube

The first example shows how to create, move, and rotate a cube of side 4.50 units.

Preliminary operations

First make the following settings.

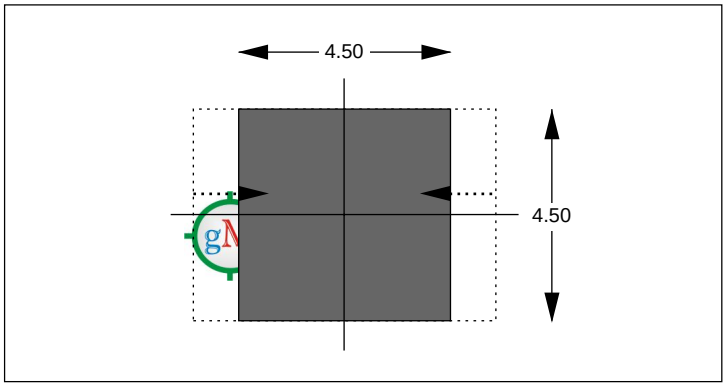
- In the CHANNEL ASSIGN menu *(see page 10-5)*, set F5 (GLOBAL ENABLE) to “ON”.
- Press the CLR WORK BUFF button twice to clear the parameters in the working keyframe buffer.
- In the IN/OUT SELECT menu *(see page 6-4)*, set the front key signal type to “Internal”.
- In the BKGD menu *(see page 5-11)*, set F1 (BKGD) or F7 (CLEAN KEY) to “ON”.

Creating the front surfaces

Use crop or “X, Y RATE” settings to create a square surface.

• **Using crop**
Crop Left: –2.25
Crop Right: +2.25
Crop Top: +2.25
Crop Bottom: –2.25

• **Using “X, Y RATE”**
X rate: 0.5625
Y rate: 1.00



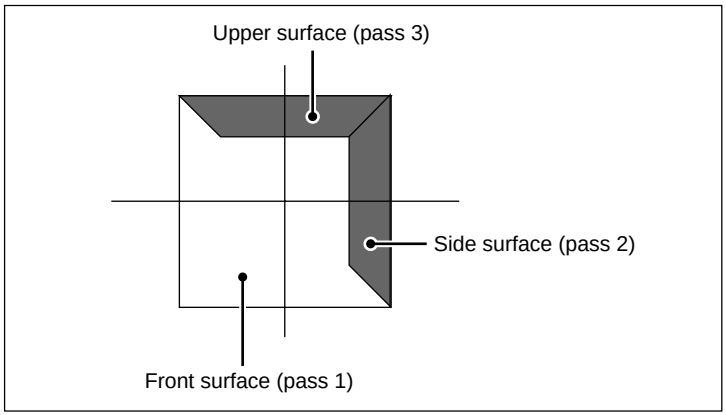
Creating the cube

Use movement and rotation in the local channel to create a cube.

• **Front surface (pass 1)**
Rotation X: 0.000
Rotation Y: 0.000
Source location Z: –2.25

• **Side surface (pass 2)**
Rotation X: +0.250
Rotation Y: 0.000
Source location Z: –2.25

• **Upper surface (pass 3)**
(In practice this is done using channel 1 in a multi-pass edit.)
Rotation X: 0.000
Rotation Y: +0.250
Source location Z: –2.25



Note

If you make the edges soft, there will be small gaps where the surfaces join. It is possible to reduce the obviousness of these gaps by moving the image along the Z-axis in the source coordinates, so that the images for the different channels overlap slightly.
In this example, select SRCE LOC XYZ, and turn the Z-ring slightly counterclockwise to make the fine adjustment.

Creating the back surfaces

Move from the IN/OUT menu to the INPUT INVERT menu to reverse the three images used to build the cube in the previous section, and create the back surfaces.

BACK H INVERT: invert the back surface image in the horizontal (x-axis) direction.

BACK V INVERT: invert the back surface image in the vertical (y-axis) direction.

Moving and rotating the cube

Use the following procedure.

1 In the QUICK ENABLER menu, click “AUTO CUBE”, or in the 3D TRANSFORM menu, use F6 (AUTO CUBE) to set AUTO CUBE to “ON”.

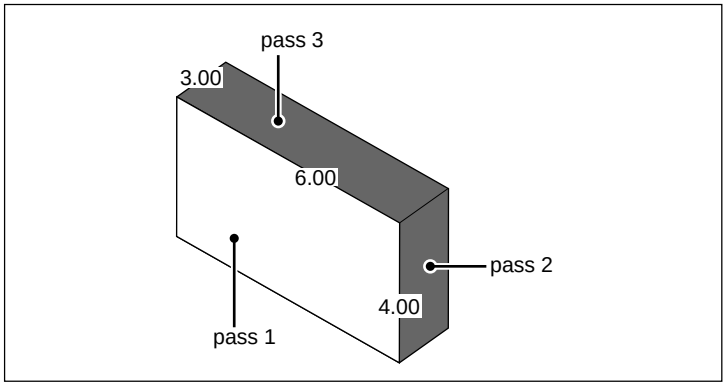
This enables the auto cube function.

2 Select the global channel.

3 Use the trackball and Z-ring to manipulate the cube.

Creating, Moving, and Rotating a Slab

This example shows how to create, move, and rotate a slab of width 6.00, depth 3.00, height 4.00 units.



Creating the Slab

First make the same preliminary settings as in the cube example *(see page 5-5)*, and then use the following procedure.

1 Make the following size and position settings to create the front surface (6.00 × 4.00) on channel 1.

- **Size settings**
  Crop Left: –3.00 (1/2 width)
  Crop Right: +3.00
  Crop Top: +2.00 (1/2 height)
  Crop Bottom: –2.00
- **Position settings**
  Rotation X: 0.000
  Rotation Y: 0.000
  Source Location Z: –1.500 (1/2 depth)

2 Make the following size and position settings to create the side surface (3.00 × 4.00) on channel 2.

- **Size settings**
  Crop Left: –1.50 (1/2 depth)
  Crop Right: +1.50
  Crop Top: +2.00 (1/2 height)
  Crop Bottom: –2.00
- **Position settings**
  Rotation X: 0.250
  Rotation Y: 0.000
  Source Location Z: –3.000 (1/2 width)

3 Make the following size and position settings to create the upper surface (6.00 × 3.00) on channel 3.

- **Size settings**
  Crop Left: –3.00 (1/2 width)
  Crop Right: +3.00
  Crop Top: +1.50 (1/2 depth)
  Crop Bottom: –1.50
- **Position settings**
  Rotation X: 0.000
  Rotation Y: 0.250
  Source location Z: –2.000 (1/2 height)

Creating the back surfaces

Use the same procedure as for the cube *(see page 5-7).*

Moving and rotating the slab

Use the same procedure as for the cube *(see page 5-7).*

Background and Edge Effects

This section describes how to operate the background and edge effects.

When the HKDS-7061 and HKDS-7071 are both installed, you can use the BKGD, BORDER, CROP, and DROP SHADOW effects on DME channel 1. You can also use the BORDER and CROP effects on DME channel 2.
When only the HKDS-7061 is installed, you can use the BORDER and CROP effects on DME channel 2.

Option configuration	HKDS-7061 and HKDS-7071		HKDS-7061 only
Channel	DME 1	DME 2	DME 2
BKGD & EDGE	Available	Not available	Not available
BORDER	Available	Available	Available
CROP	Available	Available	Available
DROP SHADOW	Available	Not available	Not available

Effect Selection – 10

Top menu display

The background and edge effects are selected from the BKGD & EDGE menu.

BKGD & EDGE menu soft key indications

Selection operation

Press the required function key as shown in the following table to select the effect.

Function key	Function	See page
F1 (BKGD)	Adjust background color.	5-11
F2 (BORDER)	Apply a border to the image.	5-13
F3 (CROP)	Use a frame to crop the image.	5-16
F4 (DROP SHADOW)	Apply a drop shadow to the image.	5-18

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BKGD (Background) Settings – 11

In the BKGD & EDGE menu, press F1 (BKGD) to display the BKGD menu.

BKGD menu soft key indications

The following are some of the operations carried out in this menu.

Toggling the background on and off – F1 (BKGD)

Press F1 (BKGD).
When the background is on, the following settings for F2 to F8 are enabled.

Selecting a single-color background – F2 (FLAT COLOR)

Use the following procedure.

1 Press F2 (FLAT COLOR), turning it on.

2 Adjust the parameters as follows.
- Left knob (“Lum”): luminance (0 to 100%)
- Center knob (“Sat”): saturation (0 to 100%)
- Right knob (“Hue”): hue (0 to 359.99°)

Selecting a background with a changing color – F3 (HUE ROT)

Use the following procedure.

1 Press F3 (HUE ROT), turning it on.

2 Adjust the parameters as follows.
- Left knob (“Lum”): luminance (0 to 100%)
- Center knob (“Sat”): saturation (0 to 100%)
- Right knob (“Sped”): rate of change of hue per frame (–12 to +12°)

Inserting external video into the background – F5 (EXT VIDEO)

Set F5 (EXT VIDEO) to ON.
This inserts the video signal input to the EXTERNAL VIDEO connector on the rear of the processor into the background.

Selecting a super-black background – F6 (SUPER BLACK)

Use the following procedure.

1 Press F6 (SUPER BLACK), turning it on.

2 Use the left knob (“Levl”) to adjust the super-black level. (0 to –40%)

Making the background black with the clean key function – F7 (CLEAN KEY)

When using the clean key function on a DME image in the switcher, press F7 (CLEAN KEY), turning it on.
This makes the background black.

Note

When F1 (BKGD) is off, the DME output video image extends slightly outside the key signal and it has sharp edges, to allow for edge softening when F1 (BKGD) is on or when keying on the switcher with the DME image.
Clean key mode is provided to make it possible to make the edges of a DME image soft without turning F1 (BKGD) on, and allow keying of the DME image on the switcher.

BORDER Settings – 12

In the BKGD & EDGE menu, press F2 (BORDER) to display the BORDER menu.

BORDER menu soft key indications

Note

It is not possible to apply two or more of the border, mask, and lighting effects simultaneously.

The following are some of the operations carried out in this menu.

Toggling the border on and off – F1 (BORDER)

Press F1 (BORDER).
When the border is on, the following settings are enabled.

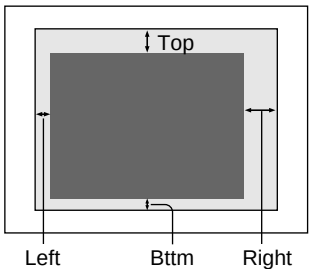
Adjusting the border width and density

Adjust the parameters for the items shown below.
The border is based on the setting in the CROP menu *(see page 5-16)*; you can apply the border in either the positive direction (defined as on the inside of the frame) or in the negative direction (on the outside).

BORDER settings

Item	Setting	Knob adjustments of parameters
"Width All"[a)]	Adjust the width of two or four edges together.	Left ("H"): Adjust width of left and right edge border. Center ("V"): Adjust width of upper and lower edge border. Right ("All"): Adjust width of border on all four edges.
"Separate Width"	Adjust the width of all four edges separately.	Left ("Left"): Adjust width of left edge border (–0.20 to +8). Center ("Right"): Adjust width of right edge border (–0.20 to +8). Left ("Top"): Adjust width of upper edge border (–0.20 to +8). Center ("Bttm"): Adjust width of lower edge border (–0.20 to +8).
"Density"	Adjust the density of the border.	Left ("Dens"): Density (0 to 100%).

a) The parameter values for this item are always shown as "***", but the setting is reflected in the individual parameter values under "Separate width". It is also possible to input a value from the numeric keypad.



Selecting the border color – F2 (FLAT COLOR) and F3 (HUE ROT)

These border color selections are the same as for the background.

For details of the operations required, see the section "BKGD settings" (page 5-11).

Inserting external video into the border – F5 (EXT VIDEO)

Set F5 (EXT VIDEO) to ON.
This inserts the video signal input to the EXTERNAL VIDEO connector on the rear of the processor into the border.

Softening the border – F6 (BORDER SOFT)

Use the following procedure.

1 Press F6 (BORDER SOFT), turning it on.

2 Adjust the parameters as follows.
- Left knob ("Innr"): degree of softening of inner edge (0 to 100%)
- Center knob ("Outr"): degree of softening of outer edge (0 to 100%)
- Right knob ("All"): degree of softening of inner and outer edges (***)

Setting the size of frame at which the border is applied – F7 (CROP)

To set the size, position, and other parameters of the frame, press F7 (CROP). The CROP menu appears.

For details see the following section "CROP Settings".

CROP Settings – 13

The crop effect shrinks the frame so that only a portion of the image is visible.

In the BKGD & EDGE menu, press F3 (CROP) to display the CROP menu.

CROP menu soft key indications

The following are some of the operations carried out in this menu.

Toggling cropping on and off – F1 (CROP)

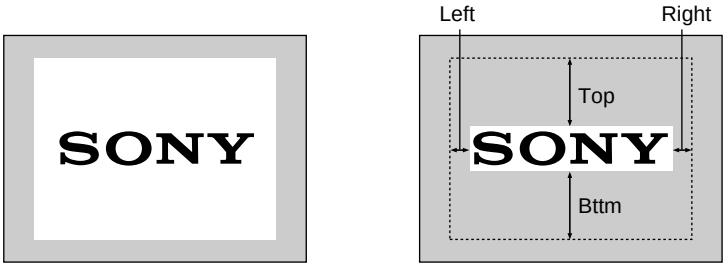
Press F1 (CROP).
When cropping is on, the following settings are enabled.

Adjusting the frame position

Adjust the parameters for the items shown below.

Item	Setting	Knob adjustments of parameters
"Crop All"[a)]	Adjust the cropping of two or four edges together.	Left ("H"): Adjust cropping of left and right edges. Center ("V"): Adjust cropping of upper and lower edges. Right ("All"): Adjust cropping on all four edges.
"Separate Crop"	Adjust the cropping of all four edges separately.	Left ("Left"): Adjust cropping of left edge (–5 to +5). Center ("Right"): Adjust cropping of right edge (–5 to +5). Left ("Top"): Adjust cropping of upper edge (–3 to +3). Center ("Bttm"): Adjust cropping of lower edge (–3 to +3).

a) The parameter values for this item are always shown as "***", but the setting is reflected in the individual parameter values under "Separate Crop". It is also possible to input a value from the numeric keypad.



CROP OFF CROP ON

Softening the cropping edge – F3 (EDGE SOFT)

This function is only enabled when F1 (BORDER) in the BORDER menu is “OFF”.
Use the following procedure.

1 Press F3 (EDGE SOFT), turning it on.

2 Turn the left knob (“Soft”) to adjust the degree of softening of the edge (0 to 100%).

Inverting the sense of cropping – F4 (CROP INVERT)

Press F4 (CROP INVERT), turning it on.
This interchanges the image area and the cropped area.

Applying a border – F8 (BORDER)

To apply a border to the cropping frame, press F8 (BORDER).
The BORDER menu appears.

For details see the section “BORDER settings” (page 5-13).

DROP SHADOW Settings – 14

In the BKGD & EDGE menu, press F4 (DROP SHADOW) to display the DROP SHADOW menu.

DROP SHADOW menu soft key indications

The following are some of the operations carried out in this menu.

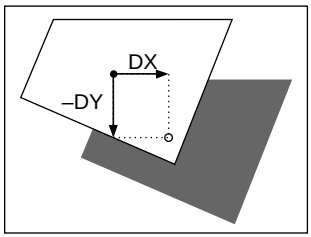
Toggling the drop shadow on and off – F1 (DROP SHADOW)

Press F1 (DROP SHADOW), turning it on.
This enables the following settings.

Adjusting the drop shadow position and density

Adjust the “Position & Density” parameters.

- Left knob (“DX”): the drop shadow position in the x direction (–4 to +4)
- Center knob (“DY”): the drop shadow position in the y-direction (–3 to 0)
- Right knob (“Dens”): shadow density (0 to 100%)



Note

If part of the image falls outside the monitor screen area, the drop shadow of that part of the image is omitted.

Selecting the drop shadow color – F3 (FLAT COLOR) and F4 (HUE ROT)

Select the drop shadow color in the same way as a background color.

For details, see the section "BKGD Settings" (page 5-11).

Inserting external video into the drop shadow – F6 (EXT VIDEO)

Set F6 (EXT VIDEO) to ON.
This inserts the video signal input to the EXTERNAL VIDEO connector on the rear of the processor into the drop shadow.

Freeze and Afterimage Effects

This section describes how to operate the image freeze effects and various effects with recursive use of memory.

Input freeze

When both the HKDS-7061 and HKDS-7071 are installed, you can carry out an input freeze on both channels, DME 1 and DME 2. When only the HKDS-7061 is installed, you can carry out an input freeze on the DME 2 channel only.

Recursive effects

When both the HKDS-7061 and HKDS-7071 are installed, you can use recursive effects on the DME 1 channel. When only the HKDS-7061 is installed, recursive effects are not available.

Option configuration	**HKDS-7061 and HKDS-7071**		**HKDS-7061 only**
Channel	DME 1	DME 2	DME 2
INPUT FREEZE	Available	Available	Available
RECURSIVE	Available	Not available	Not available

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Effect Selection – 20

Top menu display

The freeze and afterimage effects are selected from the FREEZE & RECUR menu.

FREEZE & RECUR menu soft key indications

Selection operation

In the FREEZE & RECUR menu, press the required function key as shown in the following table to select the effect.

Function key	Function	See page
F1 (INPUT FREEZE)	Freeze or run input video.	5-22
F2 (MOTION DECAY)	For a moving picture, blur the motion by creating afterimages.	5-24
F3 (TRAIL)	Freeze the input video at regular intervals, leaving an afterimage trail.	5-27
F4 (WIND)	Freeze the input video at regular intervals, and move the frozen image in a particular direction.	5-29
F5 (KF STROBE)	Freeze the input video on each keyframe of the effect, leaving a trail.	5-31
F6 (MULTI FREEZE)	Freeze the input video on each keyframe of the effect, and insert in a grid.	5-32

INPUT FREEZE Settings – 21

In the FREEZE & RECUR menu, press F1 (INPUT FREEZE) to display the INPUT FREEZE menu.

INPUT FREEZE menu soft key indications

The following are some of the operations carried out in this menu. F1 to F5 act as radio buttons, that is, pressing any of them toggles the corresponding function on or off, and it is not possible to have more than one function on at a time.

Freezing the input frame – F1 (HARD FREEZE)

Press F1 (HARD FREEZE), turning it on.
This freezes the input video.

Recalling the last freeze frame – F2 (LAST FREEZE)

Press F2 (LAST FREEZE), turning it on.
This recalls the last frame frozen on the main monitor.

Selecting a stroboscope effect – F3 (TIME STROBE)

To freeze the input video at regular intervals of a number of frames, use the following procedure.

1 Press F3 (TIME STROBE), turning it on.

2 Adjust the parameters as follows.

- Left knob (“Dur”): interval between freeze frames (0 to 255 frames)
  The value is specified in frames to two decimal places. If set to 30.50 frames, for example, the freeze interval alternates between 30 and 31 frames.
- Center knob (“Live”): proportion of the interval between two successive freeze frames for which the video is run (0 to 100%)

Strobing on each keyframe – F4 (KF STROBE)

Press F4 (KF STROBE), turning it on.
This freezes the input video on each keyframe of the effect.

Obtaining an impression of film frame flicker – F5 (FILM)

Use the following procedure.

1 Press F5 (FILM), turning it on.

2 Turn the left knob ("Film") to adjust the degree of film frame flicker (0 to 100%).

Selecting the video freeze timing – F6 (VIDEO TIMING)

Press F6 (VIDEO TIMING), to cycle through the following possibilities.
Frame: freeze a frame.
Field 1: freeze the first field of a frame.
Field 2: freeze the second field of a frame.

Selecting the keyframe freeze timing – F7 (KEY TIMING)

Press F7 (KEY TIMING) to cycle through the possibilities: "Frame", "Field 1", or "Field 2".

Selecting which signals are frozen – F8 (DELEGATION)

The freeze function can apply to the video signal, or to the key signal, or to both.
Press F8 (DELEGATION) to cycle through the following possibilities:
Video & Key: Apply to the video and key images simultaneously.
Video: Apply to the video image only. The key image is unaffected.
Key: Apply to the key image only. The video image is unaffected.

MOTION DECAY Settings – 22

This blurs the motion of a moving video by creating afterimages.

In the FREEZE & RECUR menu, press F2 (MOTION DECAY) to display the MOTION DECAY menu.

MOTION DECAY menu soft key indications

The following are some of the operations carried out in this menu.

Blurring motion – F1 (MOTION DECAY)

Use the following procedure.

1 Press F1 (MOTION DECAY), turning it on.

2 Set the “Decay” parameters.

- Left knob (“Vid”): degree of blurring of video signal (0 to 100%)
- Center knob (“Key”): degree of blurring of key signal (0 to 100%)
- Right knob (“Dust”): degree of leaving stardust trails of afterimage (0 to 100%)

Deleting the afterimage remaining in memory at each keyframe – F4 (RESUME RECUR)

Press F4 (RESUME RECUR), turning it on.
Each time the effect passes a keyframe, the recursive memory is cleared, deleting the afterimage.

TRAIL SOURCE Settings – 22.1

You can replace the afterimage part of a recursive effect with a different video.

In the FREEZE & RECUR menu, press F8 (TRAIL SOURCE) to display the TRAIL SOURCE menu.

TRAIL SOURCE menu soft key indications

Replacing the afterimage part with a different video – F2 (TRAIL COLOR)

Press F2 (TRAIL COLOR), turning it on.
This replaces the afterimage part of a recursive effect with a different video.

Selecting the video for the afterimage part – F4 (SOURCE TYPE)

Press F4 (SOURCE TYPE), and select the video or color matte to be used for the afterimage part.
FLAT: a single hue
HUE ROT: a progressively changing hue
EXT VIDEO: external video

Select the color, or carry out adjustments as follows. (When you select "EXT VIDEO" there are no adjustments.)

Selecting a single-hue matte for the afterimage part – F4 (SOURCE TYPE) "FLAT"

After pressing F4 (SOURCE TYPE) and selecting "FLAT", set the color parameters.
• Left knob ("Lum"): luminance (0 to 100%)
• Center knob ("Sat"): saturation (0 to 100%)
• Right knob ("Hue"): hue (0 to 359.99˚)

Selecting a progressively changing hue for the afterimage part – F4 (SOURCE TYPE) “HUE ROT”, F5 (HUE RANGE), and F6 (HUE PATH)

After pressing F4 (SOURCE TYPE) and selecting “HUE ROT”, the soft key indications change as follows.

RECUR	TRAIL COLOR	TRAIL TYPE	SOURCE TYPE		HUE RANGE	HUE PATH		

Soft key indications when “HUE ROT” is selected

Use the following procedure to make the settings for the progressively changing hue.

1 Press F4 (SOURCE TYPE) and select “Hue Rot”, then set the following parameters.
- Left knob (“Lum”): luminance (0 to 100%)
- Center knob (“Sat”): saturation (0 to 100%)
- Right knob (“Sped”): degree of change of the hue for each frame (–12 to +12˚)

2 Press F5 (HUE RANGE), turning it on, and adjust the parameters for the hue variation range.
- Left knob (“Cntr”): center of the hue variation range (0 to 359.99˚)
- Center knob (“Rang”): hue variation range (0 to 180˚)
- Right knob (“Step”): degree of change of the hue (0 to 100%)

3 Press F6 (HUE PATH) and select the behavior when the varying hue reaches the end of its range.
Modulo: return to the other end of the range, and recycle.
Swing: reverse direction, thus carrying out a reciprocating variation.

TRAIL Settings – 23

This strobes the input video at regular intervals, leaving an afterimage trail.

In the FREEZE & RECUR menu, press F3 (TRAIL) to display the TRAIL menu.

TRAIL menu soft key indications

The following are some of the operations carried out in this menu.

Leaving an afterimage trail – F1 (TRAIL)

Use the following procedure.

1 Press F1 (TRAIL), turning it on.

2 Adjust the “Decay” parameters as follows.
- Left knob (“Decy”): degree of blurring of video signal (0 to 100%)
- Right knob (“Dust”): degree of leaving stardust trails of afterimage (0 to 100%)

3 Adjust the “Duration” parameters as follows.
- Left knob (“Dur”): interval between freeze frames (0 to 255 frames)
- Center knob (“Live”): proportion of the interval between two successive freeze frames for which the video is run (0 to 100%)

Deleting the afterimage remaining in memory at each keyframe – F4 (RESUME RECUR)

Press F4 (RESUME RECUR), turning it on.
Each time the effect passes a keyframe, the recursive memory is cleared, before writing the new afterimage.

Changing the manner of superimposition of the moving video and freeze frames (afterimages) – F5 (PRIORITY)

Press F5 (PRIORITY).

This cycles through the settings “Over” and “Under”, changing the manner of superimposition.

Over: the moving video is on top.

Under: the moving video is underneath.

WIND Settings – 24

This freezes the input video at regular intervals, and moves the frozen image in a particular direction.

In the FREEZE & RECUR menu, press F4 (WIND) to display the WIND menu.

WIND menu soft key indications

The following are some of the operations carried out in this menu.

Applying the WIND effect – F1 (WIND)

Use the following procedure.

1 Press F1 (WIND), turning it on.

2 Set the WIND direction (Shift) parameters.
- Left knob (“H”): amount of movement horizontally (–100 to +100%)
- Right knob (“V”): amount of movement vertically (–100 to +100%)

3 Adjust the “Decay” parameters as follows.
- Left knob (“Decy”): degree of blurring of video signal (0 to 100%)
- Right knob (“Dust”): degree of leaving stardust trails of afterimage (0 to 100%)

Applying modulation to “WIND” – F4 (MODULATION)

Use the following procedure.

1 Press F4 (MODULATION), turning it on.

2 Adjust the modulation parameters.

Item	Setting	Knob adjustments of parameters
“Modulation H”	Apply horizontal modulation	Left (“Amp”): amplitude (0 to 100%) Center (“Freq”): frequency (0 to 100%)
“Modulation V”	Apply vertical modulation	

Applying a different color to the trail – F8 (TRAIL SOURCE)

Press F8(TRAIL SOURCE), and then operate in the same way as for a trail.

For details of the operations, see the section “TRAIL Settings” (page 5-27).

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KEYFRAME STROBE Settings – 25

This freezes the video each time the effect passes a keyrame.

In the FREEZE & RECUR menu, press F5 (KF STROBE) to display the KEYFRAME STROBE menu.

KEYFRAME STROBE menu soft key indications

The following are some of the operations carried out in this menu.

Leaving an afterimage trail – F1 (KEYFRAME STROBE)

Use the following procedure.

1 Press F1 (KEYFRAME STROBE), turning it on.

2 Adjust the “Decay” parameters as follows.

- Left knob (“Decy”): degree of blurring of video signal (0 to 100%)
- Right knob (“Dust”): degree of leaving stardust trails of afterimage (0 to 100%)

Not leaving afterimages – F3 (STROBE DISABLE)

Press F3 (STROBE DISABLE), turning it on.
In this case no afterimages are left even when the effect passes a key frame.

Deleting the afterimage remaining in memory at each keyframe – F4 (RESUME RECUR)

Press F4 (RESUME RECUR), turning it on.
Each time the effect passes a keyframe, the recursive memory is cleared, before writing the freeze frame.

Changing the manner of superimposition of the moving video and freeze frames (afterimages) – F5 (PRIORITY)

Press F5 (PRIORITY).
This toggles the settings “Over” and “Under”, changing the manner of superimposition.
Over: the moving video is on top.
Under: the moving video is underneath.

MULTI FREEZE Settings – 26

This function makes a grid of size-reduced freeze pictures. The input image is frozen as the effect passes each keyframe.

In the FREEZE & RECUR menu, press F6 (MULTI FREEZE) to display the MULTI FREEZE menu.

MULTI FREEZE		NUMBER	RESUME RECUR		PRIORITY			22.1 TRAIL SOURCE

MULTI FREEZE menu soft key indications

The following are some of the operations carried out in this menu.

Toggling the "multi-freeze" function on and off – F1 (MULTI FREEZE)

Press F1 (MULTI FREEZE).
When this is on, the following settings are enabled.

Selecting the position of the frozen image on the grid

To select the position of the frozen image within the videospace, set the transformation mode as follows, and move the input image to the required position.

- In the source coordinate space: LOC XYZ or LOC SIZE
- In the target coordinate space: LOC XYZ

Note

It is not possible to carry out operations other than translation movement, such as rotation or zoom. The global channel parameter settings are also not reflected.

Selecting the number of freeze insert pictures – F3 (NUMBER)

Press F3 (NUMBER) and select 4, 9, 16 or 25 pictures.

Deleting the afterimage remaining in memory at each keyframe – F4 (RESUME RECUR)

Press F4 (RESUME RECUR), turning it on.
Each time the effect passes a keyframe, the recursive memory is cleared, before writing the freeze frame.

Changing the manner of superimposition of the moving video and freeze frames (afterimages) – F5 (PRIORITY)

Press F5 (PRIORITY).

Pressing this button toggles the settings “Over” and “Under”, changing the manner of superimposition.

Over: the moving video is on top.

Under: the moving video is underneath.

Overall Image Effects

This section describes how to operate the effects which change the overall appearance of the image.

When both the HKDS-7061 and HKDS-7071 are installed, you can use the MULTI MOVE, DEFOCUS, BLUR, and DIM effects on the DME 1 channel. On the DME 2 channel, you can use DEFOCUS and BLUR.
When only the HKDS-7061 is installed, you can use DEFOCUS and BLUR on the DME 2 channel.

Option configuration	HKDS-7061 and HKDS-7071		HKDS-7061 only
Channel	DME 1	DME 2	DME 2
MULTI MOVE	Available	Not available	Not available
DEFOCUS	Available	Available	Available
BLUR	Available	Available	Available
DIM	Available	Not available	Not available

Effect Selection – 30

Top menu display

The overall image effects are selected from the PICTURE MODIFY menu.

PICTURE MODIFY menu soft key indications

Selection operation

In the PICTURE MODIFY menu, press the required function key as shown in the following table to select the effect.

Function key	Function	See page
F1 (MULTI MOVE)	Divide up the image into a matrix, and insert moving video images.	5-35
F2 (DEFOCUS)	Apply a blurring akin to camera shake.	5-36
F3 (BLUR)	Apply a soft outline blurring.	5-37
F4 (DIM)	Make the image dim into the distance.	5-38

MULTI MOVE Settings – 31

This function fills the screen with reduced copies of the image in a matrix.

In the PICTURE MODIFY menu, press F1 (MULTI MOVE) to display the MULTI MOVE menu.

MULTI MOVE menu soft key indications

The following are some of the operations carried out in this menu.

Toggling the “multi-move” function on and off – F1 (MULTI MOVE)

Press F1 (MULTI MOVE).
When this is on, the following settings are enabled.

Selecting the size and aspect ratio of the moving insert pictures

Adjust the parameters for the following items.

Item	Setting	Knob adjustments of parameters
“Size”	Set the reduction ratio.	Right (“Size”): reduction ratio (0 to 100%)
“Aspect”	Set the aspect ratio of reduced pictures.	Left (“Asp”): aspect ratio (–100 to +100%)

DEFOCUS Settings – 32

This function applies a blurring akin to camera shake.

In the PICTURE MODIFY menu, press F2 (DEFOCUS) to display the DEFOCUS menu.

DEFOCUS menu soft key indications

The following are some of the operations carried out in this menu.

Applying a blurring akin to camera shake – F1 (DEFOCUS)

Use the following procedure.

1 Press F1 (DEFOCUS), turning it on.

2 Adjust the “DEFOCUS” Video and Key parameters as follows.

Item	Setting	Knob adjustments of parameters
“Video”	Apply defocusing to the video	Left (“H”): degree of defocusing horizontally (***) Center (“V”): degree of defocusing vertically (***) Right (“All”): degree of defocusing horizontally and vertically (***) (The settings are reflected in the separate Video Y and Video C settings.)
“Video Y”	Apply defocusing to the luminance component of the video signal.	Left (“H”): degree of defocusing horizontally (0 to 100%) Center (“V”): degree of defocusing vertically (0 to 100%) Right (“All”): degree of defocusing horizontally and vertically (***) (The “All” setting is reflected in the separate horizontal and vertical settings.)
“Video C”	Apply defocusing to the chrominance component of the video signal.	
“Key”	Apply defocusing to the key	

BLUR Settings – 33

This function applies a soft outline blurring.

Note

It is impossible to use BLUR function when “Filter Type” is set to “Depth” in the PROCESS CONTROL 1 menu.

In the PICTURE MODIFY menu, press F3 (BLUR) to display the BLUR menu.

BLUR menu soft key indications

The following are some of the operations carried out in this menu.

Applying a soft blurring – F1 (BLUR)

Use the following procedure.

1 Press F1 (BLUR), turning it on.

2 Adjust the “BLUR” parameters as follows.

Item	Setting	Knob adjustments of parameters
“Video”	Apply blurring to the video	Left (“H”): degree of blurring horizontally (***) Center (“V”): degree of blurring vertically (***) Right (“All”): degree of blurring horizontally and vertically (***) (The settings are reflected in the separate Video Y and Video C settings.)
“Video Y”	Apply blurring to the luminance component of the video signal.	Left (“H”): degree of blurring horizontally (0 to 100%) Center (“V”): degree of blurring vertically (0 to 100%) Right (“All”): degree of blurring horizontally and vertically (***) (The “All” setting is reflected in the separate horizontal and vertical settings.)
“Video C”	Apply blurring to the chrominance component of the video signal.	
“Key”	Apply blurring to the key	

DIM Settings – 34

The “dim” effect makes the image darker as it recedes into the distance (i.e. along the z-axis).

In the PICTURE MODIFY menu, press F4 (DIM) to display the DIM menu.

DIM menu soft key indications

The following are some of the operations carried out in this menu.

Applying the “dim” function – F1 (DIM)

Use the following procedure.

1 Press F1 (DIM), turning it on.

2 Adjust the “DIM” parameters as follows.
- Left knob (“Strt”): position along z-axis at which dimming starts (–100 to +100)
- Center knob (“Gain”): rate at which dimming proceeds (0 to 100%)

Selecting the color to which the image dims in the background – F3 (DIM COLOR) and F4 (HUE ROT)

You can select the color to which the image dims using a procedure similar to that for setting a background.

For details see “BKGD Settings” (page 5-11).

Video Signal Effects

This section describes how to use various effects on the video signal, such as converting it to a negative signal.

When both the HKDS-7061 and HKDS-7071 are installed, you can use the VIDEO MODIFY effects on both channels, DME 1 and DME 2.
When only the HKDS-7061 is installed, you can use the VIDEO MODIFY effects on the DME 2 channel only.

Option configuration	HKDS-7061 and HKDS-7071		HKDS-7061 only
Channel	DME 1	DME 2	DME 2
VIDEO MODIFY	Available	Available	Available

Effect Selection – 40

Top menu display

The video signal effects are selected from the VIDEO MODIFY menu.

VIDEO MODIFY menu soft key indications

Selection operation

In the VIDEO MODIFY menu, press the required function key as shown in the following table to select the effect.

Function key	Function	See page
F1 (POSTER & NEGA)	Produce a negative or posterized image.	5-40
F2 (SEPIA & MONO)	Produce various monochrome image effects.	5-42
F3 (CONTRAST)	Adjust the contrast of the image.	5-43
F4 (MOSAIC)	Make the video appear like a mosaic effect to the image.	5-45
F5 (MASK)	Mask any of the effects obtained with F1 to F4, using a mask pattern.	5-46

POSTER (Posterization) & NEGA (Negative) Settings – 41

Posterization reduces the number of quantization levels in the luminance signal and solarization reduces the number of quantization levels in the chrominance signal. The "NEGA" function which produces a negative signal may be applied to luminance and chrominance signals independently.

In the VIDEO MODIFY menu, press F1 (POSTER & NEGA) to display the POSTER & NEGA menu.

POSTER & NEGA menu soft key indications

The following are some of the operations carried out in this menu.

Applying posterization – F1 (POSTER)

Use the following procedure.

1. Press F1 (POSTER), turning it on.
2. Turn the left knob ("Post") to adjust the degree of coarsening of luminance signal (0 to 100%).

Applying solarization – F3 (SOLAR)

Use the following procedure.

1. Press F3 (SOLAR), turning it on.
   F3 (SOLAR) and F1 (POSTER) may both be on simultaneously.
2. Turn the left knob ("Sola") to adjust the degree of coarsening of chrominance signal (0 to 100%).

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Producing a negative picture – F5 (NEGA Y) and F6 (NEGA C)

Use the following procedure.

1. Press F5 (NEGA Y), turning it on, to invert the luminance signal.
2. Press F6 (NEGA C), turning it on, to invert the chrominance signal.
   F5 (NEGA Y) and F6 (NEGA C) may both be on simultaneously.

Note

Turning on F1 (POSTER) or F3 (SOLAR) automatically disables the “sepia” function described in the next section.

Applying a mask to the posterization or other function – F8 (MASK)

To make the posterization, solarization, or negative function apply only inside or outside a mask pattern, press F8 (MASK), turning it on.
This applies a mask, according to the settings in the MASK menu *(see page 5-46)*.

SEPIA & MONO (Monochrome) Settings – 42

The “sepia” effect applies a cast of a particular hue (not necessarily sepia) over the entire video image. The monochrome effect makes the image monochrome.

In the VIDEO MODIFY menu, press F2 (SEPIA & MONO) to display the SEPIA & MONO menu.

SEPIA & MONO menu soft key indications

The following are some of the operations carried out in this menu.

Applying a cast – F1 (SEPIA) to F5 (EXT VIDEO)

Use the following procedure.

1 Press F1 (SEPIA), turning it on.

2 Use the same operation as for the background settings to select the basic cast signal to be applied to the image.

For details see the section “BKGD settings” (page 5-11).

3 Adjust the “SEPIA” parameters as follows.

- Left knob (“Y”): mix amount of “sepia” luminance signal (0 to 100%)
- Center knob (“C”): mix amount of “sepia” chrominance signal (0 to 100%)
- Right knob (“All”): mix amount of “sepia” luminance and chrominance signals (***)
  (The setting is reflected in the separate luminance and chrominance settings.)

Obtaining a monochrome signal – F6 (MONO)

Press F6 (MONO), turning it on.
The color image changes to monochrome (black and white if no "sepia" cast is applied).

Note

Turning the "sepia" function on, automatically turns off F1 (POSTER) and F3 (SOLAR) in the POSTER & NEGA menu.

Applying a mask to the "sepia" function – F7 (MASK)

To make the "sepia" function apply only inside or outside a mask pattern, press F7 (MASK), turning it on.
This applies a mask, according to the settings in the MASK menu *(see page 5-46)*.

CONTRAST Settings – 43

This function adjusts the contrast of the image.

In the VIDEO MODIFY menu, press F3 (CONTRAST) to display the CONTRAST menu.

CONTRAST menu soft key indications

The following are some of the operations carried out in this menu.

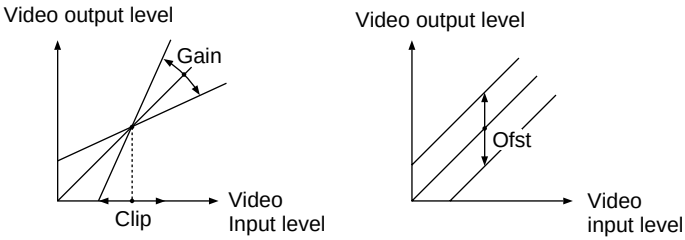
Adjusting the contrast of the luminance signal – F1 (CONTRST Y)

Use the following procedure.

1 Press F1 (CONTRST Y), turning it on.

(Continued)

2 Adjust the “CONTRAST Y” parameters as follows.
- Left knob (“Clip”): luminance clip level (–10 to +110%)
- Center knob (“Gain”): luminance contrast gradient (–100 to +100%)
- Right knob (“Ofst”): offset level increment (–100 to +100%)



Adjusting the contrast of the chrominance signal – F3 (CONTRST C)

Use the following procedure.

1 Press F3 (CONTRST C), turning it on.

2 Adjust the “CONTRAST C” parameters as follows.
- Center knob (“Gain”): chrominance contrast gradient (–100 to +100%)
- Right knob (“Ofst”): offset level increment (–100 to +100%)

See the diagrams above for the effect of these settings.

Applying a mask to the contrast function – F5 (MASK)

To make the contrast setting apply only inside or outside a mask pattern, press F5 (MASK), turning it on.
This applies a mask, according to the settings in the MASK menu *(see page 5-46)*.

MOSAIC Settings – 44

The mosaic function divides up the image into a matrix of rectangles, and averages the signal within each rectangle, giving a mosaic effect.

In the VIDEO MODIFY menu, press F4 (MOSAIC) to display the MOSAIC menu.

MOSAIC menu soft key indications

The following are some of the operations carried out in this menu.

Applying the mosaic effect – F1 (MOSAIC)

Use the following procedure.

1 Press F1 (MOSAIC), turning it on.

2 Adjust the “MOSAIC” parameters as follows.
- Left (“Size”): size of mosaic tile (0 to 100%)
- Center (“Asp”): aspect ratio of mosaic tile (–100 to +100%)

Applying a mask to the mosaic function – F5 (MASK)

To make the mosaic function apply only inside or outside a wipe pattern, press F5 (MASK), turning it on.
This applies a mask, according to the settings in the MASK menu *(see page 5-46)*.

MASK Settings – 45

When any of the video signal effects in the VIDEO MODIFY menu are applied (posterization, solarization, negative image, sepia cast, monochrome, contrast adjustment or mosaic), this function applies a mask pattern so that the effect is only applied inside (normal) or outside (inverted) the mask pattern.

Note

It is not possible to apply two or more of the border, mask, and lighting effects simultaneously.

In the VIDEO MODIFY menu, press F5 (MASK) to display the MASK menu.

MASK menu soft key indications

The following are some of the operations carried out in this menu.

Turning mask settings of video modifiers on and off – F1 (MODIFY MASK)

Press F1 (MODIFY MASK).
When this is “ON”, the mask function is enabled.

Softening the edge of the mask pattern

By selecting the “Edge softness” item in the MASK menu and turning the left knob (“Soft”), it is possible to vary the degree of softening of the edge.

Varying the mask pattern position and size with the trackball and Z-ring – F3 (TRACK BALL)

Use the following procedure.

1 Press F3 (TRACK BALL), turning it on.

2 To move the pattern in the x- or y-direction, turn the trackball. To change the pattern size, turn the Z-ring.

As you move the trackball and Z-ring the “Position & Size” parameters change. The cursor stays on the indication of the function key F3 (TRACK BALL).

Varying the mask pattern position and size with the control knobs

Adjust the “Position & Size” parameters.
- Left knob (“X”): horizontal position of center (–8 to +8)
- Center knob (“Y”): vertical position of center (–6 to +6)
- Right knob (“Size”): pattern size (0 to 100%)

Adjusting the aspect ratio of the mask pattern.

Adjust the “Aspect” parameters.
- Left knob (“Asp”): aspect ratio of pattern (–100 to +100%)

Inverting the crop sense – F5 (MASK INVERT)

Press F5 (MASK INVERT), turning it on.
The video and key signals now appear only in the outside of the mask pattern.

Nonlinear Effects

This section describes how to use nonlinear effects to provide a variety of whole-picture transformations.

When both the HKDS-7061 and HKDS-7071 are installed, you can use nonlinear effects on the DME 1 channel.
When only the HKDS-7061 is installed, nonlinear effects are not available.

Option configuration	HKDS-7061 and HKDS-7071		HKDS-7061 only
Channel	DME 1	DME 2	DME 2
NONLINEAR	Available	Not available	Not available

Effect Selection – 100

Top menu display

The nonlinear effects are selected from the NONLINEAR menu. The NONLINEAR menu contains four sets of soft key indications. Press F8 (MORE) to cycle through the sets.

NONLINEAR menu soft key indications (set 1)

NONLINEAR menu soft key indications (set 2)

NONLINEAR menu soft key indications (set 3)

NONLINEAR menu soft key indications (set 4)

Selection operation

In the NONLINEAR menu, press the required function key as shown in the following table to select the effect.

Note

It is only possible to have one nonlinear effect selected at a time. Therefore, setting one of these functions to “ON” automatically switches an existing “ON” function off.

Selecting from the first set of soft key indications

Function key	Function	See page
F1 (WAVE)	Provide a wavy effect on the image.	5-51
F2 (MOSAIC GLASS)	Provide a longitudinal wave effect on the image.	5-56
F3 (FLAG)	Provide the effect of a waving flag.	5-56
F4 (RIPPLE)	Create ripples.	5-57
F5 (RINGS)	Break the picture up into rings.	5-59
F6 (RIPPLE2)	Create ripples.	5-76
F7 (TWIST)	Deform the image in a twisting manner.	5-78
F8 (MORE)	Switch to the second set of soft key indications, as shown on the next page.	—

Selecting from the second set of soft key indications

Function key	Function	See page
F1 (BROKEN GLASS)	Shatter the picture into fragments.	5-60
F2 (FLYING BARS)	Break the picture into separately moving strips.	5-61
F3 (SPLIT)	Split the picture horizontally and vertically.	5-62
F4 (SPLIT SLIDE)	Break the picture into strips moving apart alternately.	5-63
F5(CHARACTER TRAIL)	Provide the effect of pulling out a “tail” from a peripheral part of the image.	5-65
F6 (EXPLOSION)	Make the image disintegrate at the pixel level.	5-80
F7 (SWIRL)	Deform the image in a swirling manner.	5-82
F8 (MORE)	Switch to the third set of soft key indications, as shown below.	—

Selecting from the third set of soft key indications

Function key	Function	See page
F1 (MIRROR)	Reflect part of the image.	5-66
F2 (LENS)	Provide the effect of seeing part of the image through a lens.	5-67
F3 (CIRCLE)	Make the image circular.	5-68
F4 (PANORAMA)	Provide an effect of enhanced perspective by curving the upper and lower edges of the image.	5-69
F6 (BLIND)	Divide the image into strips or wedges, and rotate each piece individually.	5-84
F7 (KALEIDOSCOPE)	Create an effect like a kaleidoscope.	5-86
F8 (MORE)	Switch to the fourth set of soft key indications, as shown on the next page.	—

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Selecting from the fourth set of soft key indications

Function key	Function	See page
F1 (PAGETURN)	Provide the effect of a page turning.	5-70
F2 (ROLL)	Provide the effect of rolling the image up like a scroll.	5-72
F3 (CYLINDER)	Provide the effect of wrapping the image around a cylinder.	5-73
F4 (SPHERE)	Provide the effect of wrapping the image around a sphere.	5-75
F6 (MULTI MIRROR)	Alternate images and mirror images.	5-88
F7 (MELT)	Deform the image as though part of it were melting.	5-89
F8 (MORE)	Switch to the first set of soft key indications, as shown on page 5-49.	—

WAVE Settings – 101

This provides a wavy effect on the image.

With the first set of soft key indications shown in the NONLINEAR menu, press F1 (WAVE) to display the WAVE menu.

WAVE menu soft key indications

The following are some of the operations carried out in this menu.

Toggling the wave effect on and off – F1 (WAVE)

Press F1 (WAVE).
When this is on, the following settings are enabled.

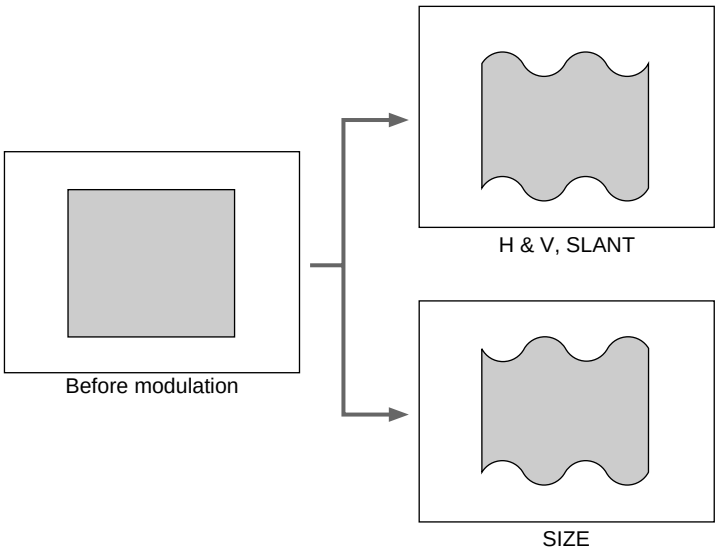
Selecting the wave mode – F2 (MODE)

Press F2 (MODE) to select “H & V”, “SLANT” or “SIZE”.

“H & V”: The wavy effect is applied either horizontally or vertically or both simultaneously.

“SLANT”: The wavy effect is applied in a specified direction. In this case it can only be applied in one direction at a time.

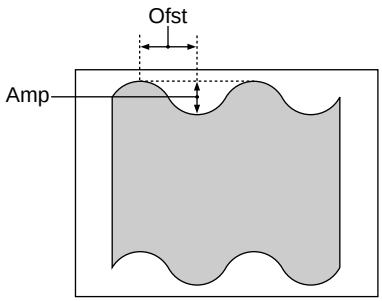
“SIZE”: The size is modulated in an arbitrary direction. This effect creates waves in one direction only.



Adjusting the wave pattern

Adjust the parameters for the following items.
When F2 (MODE) is set to “H & V” then the “Modulation H” and “Modulation V” items are enabled; when F2 (MODE) is set to “SLANT” or “SIZE” then the “Modulation H” and “Slant Angle” items are enabled.

Item	Setting	Knob adjustments of parameters
“Modulation H”	Nature of the horizontal modulation	Left (“Amp”): amplitude of the waves (0 to 100%) Center (“Freq”): degree of fineness of the waves (0 to 100%) Right (“Sped”): direction and speed of wave motion (–100 to +100%) (When F3 (“LOCK”) is on) Right (“Ofst”): phase offset and direction of the waves (–16 to +16)
“Modulation V”	Nature of the vertical modulation	Left (“Amp”): amplitude of the waves (0 to 100%) Center (“Freq”): degree of fineness of the waves (0 to 100%) Right (“Sped”): direction and speed of wave motion (–100 to +100%) (When F3 (“LOCK”) is on) Right (“Ofst”): phase offset and direction of the waves (–16 to +16)
“Slant Angle”	Orientation of wave effect	Right (“Angl”): Orientation of wave rotation (–8 to +8)



Stopping the wave motion – F3 (LOCK)

Press F3 (LOCK), turning it on, to stop the wave motion. Press it again to restart movement.

Restricting the wavy modulation to a particular part of the image – F4 (RANGE)

Press F4 (RANGE) to toggle on and off the restriction, using the current settings.

For the range setting procedure, see the section "Setting the wave range" on the next page.

Selecting the waveform – F7 (WAVE FORM)

Use the following procedure.

1 Press F7 (WAVE FORM).

The WAVE FORM menu appears.

WAVE FORM menu soft key indications

2 To select the modulating waveform in the horizontal direction, press F2 (FORM H).

Pressing F2 (FORM H) cycles through the following possibilities.

SINE → PARAB → TRIANG → RECT → CIRCLE → CUBIC

3 To select the modulating waveform in the vertical direction, press F3 (FORM V).
This provides the same set of possibilities as in step **2**.

4 Adjust the "Randomness" parameters as follows.

- Left knob ("H"): degree of randomness horizontally (0 to 100%)
- Center knob ("V"): degree of randomness vertically (0 to 100%)
- Right knob ("All"): degree of randomness horizontally and vertically (***)

Setting the wave range – F8 (WAVE RANGE)

Use the following procedure.

1 Press F8 (WAVE RANGE).

The WAVE RANGE menu appears.

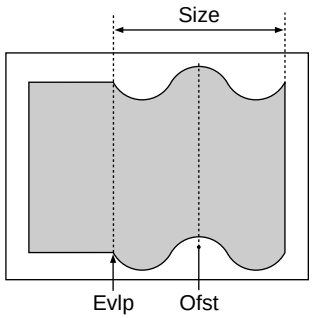
RANGE	REVERSE H	REVERSE V			ENVE-LOPE			101.1 WAVE FORM

WAVE RANGE menu soft key indications

2 Press F1 (RANGE), turning it on.

3 Adjust the parameters for the following items.
If "SLANT" or "SIZE" is selected, then only the "Range H" item is valid.

Item	Setting	Knob adjustments of parameters
"Range H"	Range of horizontal wave effect.	Left ("Size"): extent of range (0 to 100%) Center ("Ofst"): center of range (–8 to +8) Right ("Evlp"): smoothness of the boundary portion (0 to 100%)
"Range V"	Range of vertical wave effect.	Left ("Size"): extent of range (0 to 100%) Center ("Ofst"): center of range (–8 to +8) Right ("Evlp"): smoothness of the boundary portion (0 to 100%)



4 To smooth the boundary between the wave portion and the remainder, press F5 (ENVELOPE), turning it on, and adjust the parameter with the right knob.

(Continued)

5 To invert the sense of the range set in step **3**, so that the wave effect applies outside rather than inside, press F2 (REVERSE H) or F3 (REVERSE V), turning it on.

MOSAIC GLASS Settings – 102

This provides a mosaic glass effect on the image.

With the first set of soft key indications shown in the NONLINEAR menu, press F2 (MOSAIC GLASS) to display the MOSAIC GLASS menu.

MOSAIC GLASS menu soft key indications

The items shown in this menu, and the function key operations are the same as in the WAVE menu.

For details see the section “WAVE Settings – 101” (page 5-51).

FLAG Settings – 103

This provides the effect of a waving flag.

With the first set of soft key indications shown in the NONLINEAR menu, press F3 (FLAG) to display the FLAG menu.

FLAG menu soft key indications

The items shown in this menu, and the function key operations are the same as in the WAVE menu.

For details see the section “WAVE Settings – 101” (page 5-51).

RIPPLE Settings – 104

This creates ripples on the image.

With the first set of soft key indications shown in the NONLINEAR menu, press F4 (RIPPLE) to display the RIPPLE menu.

RIPPLE	MODE	LOCK	RANGE				104.1 RIPPLE FORM	104.2 RIPPLE RANGE

RIPPLE menu soft key indications

The following are some of the operations carried out in this menu.

For details about the functions provided by F3 (LOCK) to F8 (RIPPLE RANGE), see the section "WAVE settings – 101" (page 5-51).

RIPPLE FORM menu and RIPPLE RANGE menu

The RIPPLE FORM menu selected with F7 in the RIPPLE menu is basically the same as the WAVE FORM menu selected with F7 in the WAVE menu. The RIPPLE FORM menu, however, has F1 allocated to a "PLUS ONLY" function; when F1 is turned on, the modulation is restricted to the component in the positive direction (the direction of enlarging the image).

Toggling the ripple effect on and off – F1 (RIPPLE)

Press F1 (RIPPLE).
When this is on, the following settings are enabled.

Selecting the ripple mode – F2 (MODE)

Press F2 (MODE) to select either of the following.

RADIAL: Points at the same distance from the center of the ripple move in the same way.

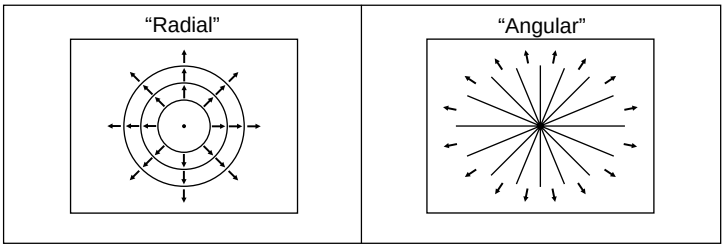
ANGULAR: Points at the same angle from the center of the ripple move in the same way.

For details of the modulation in each mode, see the figures on the next page.

Adjusting the position and size of the ripple pattern

Adjust the parameters for the following items.

Item	Setting	Knob adjustments of parameters
“Mod Radial”	Nature of the radial modulation	Left (“Amp”): amplitude and direction of the ripples (0 to 100%) Center (“Freq”): degree of fineness of the ripples (0 to 100%) Right (“Sped”): Direction and speed of wave motion (–100 to +100%) (When F3 (“LOCK”) is on) Right (“Ofst”): phase offset and direction of the ripples (–8 to +8)
“Mod Angular”	Nature of the angular modulation	Left (“Amp”): amplitude and direction of the ripples (0 to 100%) Center (“Freq”): degree of fineness of the ripples (0 to 100%) Right (“Sped”): Direction and speed of wave motion (–100 to +100%) (When F3 (“LOCK”) is on) Right (“Ofst”): phase offset and direction of the ripples (–8 to +8)
“Position”	Position of the center of the ripple pattern	Left (“X”): x-coordinate of center of ripple pattern (–4 to +4) Center (“Y”): y-coordinate of center of ripple pattern (–3 to +3)



Mode and direction of modulation

RINGS Settings – 105

This effect divides the image into pieces, which scatter as the transition proceeds.

With the first set of soft key indications shown in the NONLINEAR menu, press F5 (RINGS) to display the RINGS menu.

RINGS menu soft key indications

The following are some of the operations carried out in this menu.

Toggling the rings effect on and off – F1 (RINGS)

Use the following procedure.

1 Press F1 (RINGS), turning it on.

2 Adjust the parameters for the following items.

Item	Setting	Knob adjustments of parameters
"Transition"	Nature of transition and execution	Left ("Trns"): degree of progress of transition (0 to 100%) Center ("Rndm"): degree to which distances moved by different pieces of image are randomized (0 to 100%) Right ("Sprl"): degree of movement in the angular direction as the transition proceeds (–100 to 100%)
"Partition"	Way in which the pieces break up	Left ("Wdth"): width of partition (0 to 100%) Center ("Rndm"): degree to which partition width is randomized (0 to 100%)
"Position"	Position of center of the effect	Left ("X"): horizontal position (–5 to +5) Center ("Y"): vertical position (–4 to +4)
"Start angle"	Angle at which effect starts	Right ("Angl"): angle at which effect starts (–8 to +8)

Breaking the image into scattering pixels – F5 (PIXEL)

Use the following procedure.

1 Press F5 (PIXEL), turning it on.

2 Adjust the “PIXEL” parameters.
- Left knob (“Dens”): degree of disappearance of the periphery (0 to 100%)
- Center knob (“Rndm”): degree of jaggedness of edges of pieces (0 to 100%)

BROKEN GLASS Settings – 106

This provides the effect of the picture shattering into fragments.

With the second set of soft key indications shown in the NONLINEAR menu, press F1 (BROKEN GLASS) to display the BROKEN GLASS menu.

BROKEN GLASS menu soft key indications

The items shown in this menu, and the function key operations are the same as in the RINGS menu except for F3 (DIRECTION).

For details of operation except for that of F3 (DIRECTION), see the section “RINGS Settings – 105” on the previous page.

Fixing the direction of the shattering – F3 (DIRECTION)

Press F3 (DIRECTION), turning it on.
The direction in which the fragments of image fly when shattered is fixed by the setting of the “Start angle” parameter.

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FLYING BARS Settings – 107

This splits the picture up, and makes it peel apart in two strips.

With the second set of soft key indications shown in the NONLINEAR menu, press F2 (FLYING BARS) to display the FLYING BARS menu.

FLYING BARS menu soft key indications

The following are some of the operations carried out in this menu.

Toggling the flying bars effect on and off – F1 (FLYING BARS)

Use the following procedure.

1 Press F1 (FLYING BARS), turning it on.

2 Adjust the parameters for the following items.

Item	Setting	Knob adjustments of parameters
"Transition"	Nature of transition and execution	Left ("Trns"): degree of progress of transition (0 to 100%) Center ("Rndm"): degree to which distances moved by different pieces of image are randomized (0 to 100%) Right ("Angl"): direction of movement (–8 to +8)
"Partition"	Way in which the pieces break up	Left ("Wdth"): width of partition (0 to 100%) Center ("Rndm"): degree to which partition width is randomized (0 to 100%) Right ("Angl"): direction of partition (–8 to +8)

SPLIT Settings – 108

This splits the picture up horizontally and vertically.

With the second set of soft key indications shown in the NONLINEAR menu, press F3 (SPLIT) to display the SPLIT menu.

SPLIT menu soft key indications

The following are some of the operations carried out in this menu.

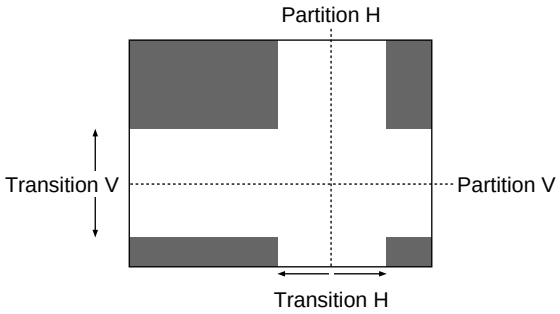
Toggling the split effect on and off – F1 (SPLIT)

Use the following procedure.

1 Press F1 (SPLIT), turning it on.

2 Adjust the parameters for the following items.

Item	Setting	Knob adjustments of parameters
"Transition"	Execution of transition	Left ("H"): degree of splitting horizontally (0 to 100%) Center ("V"): degree of splitting vertically (0 to 100%) Right knob ("All"): simultaneous horizontal and vertical splitting (***)
"Partition"	Position of partition	Left ("H"): horizontal position of partition (–4 to +4) Center ("V"): vertical position of partition (–3 to +3)



Filling the split with the original picture – F3 (DOUBLE)

To insert the video image being split also in the opening gap, press F3 (DOUBLE).

SPLIT SLIDE Settings – 109

This breaks the picture into strips moving apart alternately.

With the second set of soft key indications shown in the NONLINEAR menu, press F4 (SPLIT SLIDE) to display the SPLIT SLIDE menu.

SPLIT SLIDE menu soft key indications

The following are some of the operations carried out in this menu.

Toggling the split slide effect on and off – F1 (SPLIT SLIDE)

Press F1 (SPLIT SLIDE).
When this is on, the following settings are enabled.

Selecting the split slide mode – F2 (MODE)

Press F2 (MODE) to select either “H & V” or “SLANT”.

H & V: The image is split horizontally or vertically and slid in that direction. In this mode it is also possible to split the image simultaneously both horizontally and vertically.

SLANT: The image is split and slid in one specified direction.

Adjusting the split slide parameters

Adjust the parameters for the following items.
When F2 (MODE) is set to “SLANT” then only the “Transition H”, “Partition H” and “Slant Angle” items are enabled.

Item	Setting	Knob adjustments of parameters
“Transition H”	Nature of transition and execution	Left (“Trns”): degree of progress of transition (0 to 100%) Center (“Rndm”): degree to which distances moved by different pieces of image are randomized (0 to 100%) Right (“Skew”): degree to which slide is skewed (0 to 100%)
“Partition H”	Way in which the pieces break up	Left (“Wdth”): width of partition (0 to 100%) Center (“Pos”): position of partition (–5 to +5)
“Transition V”	Nature of transition and execution	Left (“Trns”): degree of progress of transition (0 to 100%) Center (“Rndm”): degree to which distances moved by different pieces of image are randomized (0 to 100%) Right (“Skew”): degree to which slide is skewed (0 to 100%)
“Partition V”	Way in which the pieces break up	Left (“Wdth”): width of partition (0 to 100%) Center (“Pos”): position of partition (–5 to +5)
“Slant Angle”	Angle of the split	Right (“Angl”): angle of progress of the split (–8 to +8)

CHARACTER TRAIL Settings – 110

This provides the effect of pulling out a “tail” from a peripheral part of the image.

With the second set of soft key indications shown in the NONLINEAR menu, press F5 (CHARACTER TRAIL) to display the CHARACTER TRAIL menu.

CHARACTER TRAIL menu soft key indications

The following are some of the operations carried out in this menu.

Applying the character trail effect – F1 (CHARACTER TRAIL)

Use the following procedure.

1 Press F1 (CHARACTER TRAIL).

2 Adjust the parameters for the following items.

Item	Setting	Knob adjustments of parameters
“Transition”	Nature of transition and execution	Left (“Trns”): position of beginning of effect (–8 to +8) Center (“Expn”): degree of stretching (0 to 100%) Right (“Angl”): direction of rotation of effect region (–8 to +8)
“Trail”	Angle in which tail is pulled	Right (“Angl”): direction of tail-pulling (–100 to 100%)

Turning the end of the trail into stardust – F5 (PIXEL)

Use the following procedure.

1 Press F5 (PIXEL), turning it on.

2 Adjust the “PIXEL” parameters.
- Left knob (“Dens”): degree of disappearance of the image (0 to 100%)
- Center knob (“Rndm”): behavior of tail and amount of stardust (0 to 100%)

MIRROR Settings – 111

This reflects half of the image in a horizontal or vertical mirror.

With the third set of soft key indications shown in the NONLINEAR menu, press F1 (MIRROR) to display the MIRROR menu.

MIRROR		LEFT to RIGHT	RIGHT to LEFT		TOP to BOTTOM	BOTTOM to TOP		

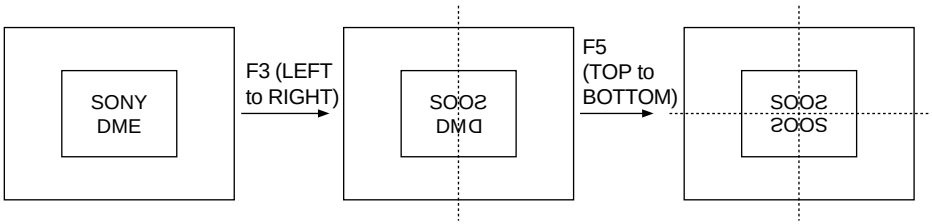
MIRROR menu soft key indications

The following are some of the operations carried out in this menu.

Applying the mirror effect – F1 (MIRROR)

Use the following procedure.

1. Press F1 (MIRROR).
2. Select the mirror effect using F3 to F6.
   Two of these may be on simultaneously.
   - F3 (LEFT to RIGHT): reflect left half on right.
   - F4 (RIGHT to LEFT): reflect right half on left.
   - F5 (TOP to BOTTOM): reflect top half on bottom.
   - F6 (BOTTOM to TOP): reflect bottom half on top.



LENS Settings – 112

This provides the effect of seeing part of the image through a lens.

With the third set of soft key indications shown in the NONLINEAR menu, press F2 (LENS) to display the LENS menu.

LENS menu soft key indications

The following are some of the operations carried out in this menu.

Applying the lens effect – F1 (LENS)

Use the following procedure.

1 Press F1 (LENS).

2 Adjust the parameters for the following items.

Item	Setting	Knob adjustments of parameters
“Magnify & Size H”	Set the magnifying power and the size of the lens.	Left (“Mag”): magnifying ratio (–100 to +100%) Center (“Curv”): curvature (–100 to +100%) Right (“Size”): size (0 to 100%)
“Magnify & Size V”	Set the magnifying power and the size of the lens in the vertical direction. (This is only effective when the MODE setting is “CROSS”.)	Left (“Mag”): magnifying ratio (–100 to +100%) Center (“Curv”): curvature (–100 to +100%) Right (“Size”): size (0 to 100%)
“Position”	Position of center of lens	Left (“X”): x-coordinate of center of lens (–5 to +5) Center (“Y”): y-coordinate of center of lens (–4 to +4)
“Aspect & Angle”	Aspect ratio and inclination of lens	Left (“Asp”): aspect ratio (–100 to +100%) Right (“Angl”): inclination of lens (–8 to +8)

Selecting the type of lens – F2 (MODE)

Press F2 (MODE), and select the type of lens.
CIRCLE: circular
RECT: rectangular
STAR: star-shaped
HEART: heart-shaped
BAR: strip-shaped
CROSS: cross-shaped

Making only the lens portion visible – F3 (LENS ONLY)

Press F3 (LENS ONLY), turning it on.
This crops the part of the picture outside the area of the lens.

CIRCLE Settings – 113

This makes the image circular.

With the third set of soft key indications shown in the NONLINEAR menu, press F3 (CIRCLE) to display the CIRCLE menu.

CIRCLE menu soft key indications

The following operation is carried out in this menu.

Applying the circle effect – F1 (CIRCLE)

Use the following procedure.

1. Press F1 (CIRCLE), turning it on.
2. Turn the left knob (“Rad”) to adjust the radius of the circle (0 to 100%).

PANORAMA Settings – 114

This provides an effect of enhanced perspective by curving the upper and lower edges of the image.

With the third set of soft key indications shown in the NONLINEAR menu, press F4 (PANORAMA) to display the PANORAMA menu.

PANORAMA menu soft key indications

The following operation is carried out in this menu.

Applying the panorama effect – F1 (PANORAMA)

Use the following procedure.

1 Press F1 (PANORAMA), turning it on.

2 Adjust the parameters for the following items.

Item	Setting	Knob adjustments of parameters
"Curve"	Degree of curvature	Left ("H"): horizontal curvature (–100% to +100%) Center ("V"): vertical curvature (–100% to +100%)
"Position"	Position of center of curvature	Left ("X"): x-coordinate (–4 to +4) Center ("Y"): y-coordinate (–3 to +3)

PAGETURN Settings – 120

This provides the effect of page turning.

With the fourth set of soft key indications shown in the NONLINEAR menu, press F1 (PAGETURN) to display the PAGE TURN menu.

PAGETURN menu soft key indications

The following are some of the operations carried out in this menu.

Applying the pageturn effect – F1 (PAGETURN)

Use the following procedure.

1 Press F1 (PAGETURN).

2 Adjust the parameters for the following item.

Item	Setting	Knob adjustments of parameters
“Shape”	Shape of the turning page	Left (“Rad”): radius of turning portion (0 to 100%) Center (“Ofst”): amount of turning (–100 to +100%) Right (“Angl”): turning angle (–8 to +8)

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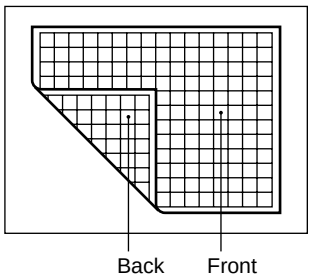
Selecting the front or back of the turning page – F2 (MODE)

Press F2 (MODE), to select one of the following.

FRONT & BACK: Output both the front and the back of the page.

FRONT: Output the front of the page only.

BACK: Output the back of the page only.



Selecting the color of the back of the page – F3 (BACK COLOR), F5 (FLAT COLOR) and F6 (HUE ROT)

When the “MODE” item is set to “FRONT & BACK” or “BACK”, it is possible to apply a color to the back of the page *(see figure above)*.

Use the following procedure.

1 Press F3 (BACK COLOR), turning it on.

2 Use F5 (FLAT COLOR) or F6 (HUE ROT), to select the color or signal used for the back of the page.

- F5 (FLAT COLOR): any single color *(see page 5-11)*.
- F6 (HUE ROT): a background with a changing color *(see page 5-11)*.

3 Adjust the settings with the control knobs, as required.

For details of the settings, see the pages in parenthesis above.

Notes

- The image on the back of the page is reversed horizontally and vertically. To restore it to the original orientation, turn the "INPUT INVERT" function on *(page 6-6)*.
- It is not possible to use the functions in the PICTURE MODIFY menu *(page 5-34)* or VIDEO MODIFY menu *(page 5-39)* to modify the back of the page.
- It is not possible to apply a border to the back of the page.

ROLL Settings – 121

This provides the effect of rolling the image up like a scroll.

With the fourth set of soft key indications shown in the NONLINEAR menu, press F2 (ROLL) to display the ROLL menu.

ROLL menu soft key indications

For details see the section "PAGETURN Settings – 120" page 5-70.

CYLINDER Settings – 122

This provides the effect of wrapping the image around a cylinder.

With the fourth set of soft key indications shown in the NONLINEAR menu, press F3 (CYLINDER) to display the CYLINDER menu.

CYLINDER menu soft key indications

The following are some of the operations carried out in this menu.

Applying the cylinder effect – F1 (CYLINDER)

Use the following procedure.

1 Press F1 (CYLINDER), turning it on.

2 Adjust the parameters for the following item.

Item	Setting	Knob adjustments of parameters
"Shape"	Cylinder shape	Left ("Rad"): cylinder radius (0 to 100%) Center ("MinR"): minimum radius of cylinder (0 to 100%) Right ("Ofst"): horizontal position at which image is wrapped around (–100% to +100%)

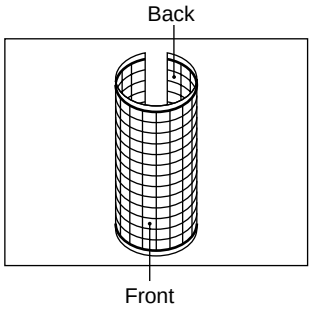
Selecting the outside or inside of the cylinder – F2 (MODE)

Press F2 (MODE) to select one of the following.

FRONT & BACK: Output both the outside and the inside of the cylinder.

FRONT: Output the outside of the cylinder only.

BACK: Output the inside of the cylinder only.



Note

When rotating a cylinder and showing the top and bottom open ends on the monitor, there are restrictions on the rotation angle.

Ensuring smooth unrolling of a cylinder – F3 (ANGLE RESET)

When unrolling a cylinder, with a rotation of the image applied about the x- or y-axis, computational limitations of the processor may cause a discontinuity as the radius of curvature increases, with the image suddenly jumping in the z-direction to the completely flat state. This problem can be avoided by using F3 (ANGLE RESET).

First, with the cylinder unrolled to just before the state where the discontinuity occurs, press F3 (ANGLE RESET), turning it on, and create a keyframe. Then increase the radius again, and repeat the procedure as required. This makes it possible to obtain a completely smooth unrolling effect.

Selecting the color of the “back” (i.e. inside) of the cylinder – F4 (BACK COLOR) to F6 (HUE ROT)

When the “MODE” item is set to “FRONT & BACK” or “BACK”, it is possible to apply a color to the “back” (i.e. inside) of the cylinder *(see figure on the previous page)*.
Carry out the operation in the same way as for PAGETURN (*see page 5-70*) except that F4 (BACK COLOR) in this menu corresponds to F3 (BACK COLOR) in the PAGETURN menu.

SPHERE Settings – 123

This provides the effect of wrapping the image around a sphere.

With the fourth set of soft key indications shown in the NONLINEAR menu, press F4 (SPHERE) to display the SPHERE menu.

SPHERE menu soft key indications

The items shown in this menu, and the function key operations are the same as in the CYLINDER menu.

For details see the section “CYLINDER Settings” (page 5-73).

Note

When rotating a sphere, it is not possible to show the points corresponding to the poles.

RIPPLE 2 Settings – 130

RIPPLE 2 provides a rippling effect similar to RIPPLE. You can apply the two variants (RADIAL and ANGULAR) simultaneously.

Note

Applying the lighting effect to RIPPLE 2 results in uniform lighting, not linked to the ripple effect.

With the first set of soft key indications shown in the NONLINEAR menu, select F6 (RIPPLE2) to display the RIPPLE2 menu.

RIPPLE2 menu soft key indications

The following are some of the operations carried out in this menu.

Applying the RIPPLE 2 effect – F1 (RIPPLE2) and F2 (MODE)

Use the following procedure.

1 Press F1 (RIPPLE2), turning it on.

2 Press F2 (MODE) to select the modulation mode.

"RADIAL": Modulate in the radial direction, creating concentric ripples.

"ANGULAR": Modulate in the angular direction, creating radiating ripples.

"BOTH": Create concentric ripples and radiating ripples simultaneously.

3 Adjust the parameters for the following items.

Item	Setting	Knob adjustments of parameters
"Mod Radial"	Nature of the radial modulation	Left ("Amp"): amplitude and direction of the ripples (0 to 100%) Center ("Freq"): degree of fineness of the ripples (0 to 100%) Right ("Sped"): direction and speed of ripple motion (–100 to +100%)
"Mod Angular"	Nature of the angular modulation	Left ("Amp"): amplitude and direction of the ripples (0 to 100%) Center ("Freq"): degree of fineness of the ripples (0 to 100%) Right ("Sped"): direction and speed of ripple motion (–100 to +100%)
"Position"	Position of the center of the ripple pattern	Left ("X"): x-coordinate (–4 to +4) Center ("Y"): y-coordinate (–3 to +3)

Stopping the ripple movement – F3 (LOCK)

Use the following procedure.

1 Press F3 (LOCK), turning it on.

This stops the ripples.

2 Turn the right knob to adjust the ripple phase.

• Right knob ("Ofst"): phase offset
Depending on the setting of F2(MODE), the range of this parameter changes as follows;
"RADIAL": –16 to +16
"ANGULAR": –8 to +8
"BOTH": –16 to +8

Selecting the form of the ripples – F7 (RIPPLE2 FORM)

Use the following procedure.

1 Press F7 (RIPPLE2 FORM), turning it on.

RIPPLE FORM menu soft key indications

(Continued)

2 To select the ripple form for radial modulation, press F2 (FORM RADIAL), and to select the ripple form for angular modulation, press F3 (FORM ANGULAR).

Pressing either F2 or F3 cycles through the following possibilities:

SINE (sine wave) → PARAB (parabola) → TRIANG (triangular wave) → RECT (square wave) → CIRCLE (circle) → CUBIC (cubic polynomial)

3 To apply the modulation in the positive direction only, press F1 (PLUS ONLY), turning it on.
By restricting the modulation to the positive direction, you can eliminate gaps at the edges of the image.

TWIST Settings – 131

TWIST applies a twisting effect to the image.
With the first set of soft key indications shown in the NONLINEAR menu, select F7 (TWIST) to display the TWIST menu.

TWIST menu soft key indications

The following are some of the operations carried out in this menu.

Applying the twist effect – F1 (TWIST)

Use the following procedure.

1 Press F1 (TWIST), turning it on.

2 Adjust the parameters for the following items.

Item	Setting	Knob adjustments of parameters
"Modulation H"	Nature of the horizontal modulation	Left ("Amp"): amplitude of the twists (0 to 100%) Center ("Freq"): degree of fineness of the twists (0 to 100%) Right ("Sped"): direction and speed of the twists (–100 to +100%)
"Modulation V"	Nature of the vertical modulation	Left ("Amp"): amplitude of the twists (0 to 100%) Center ("Freq"): degree of fineness of the twists (0 to 100%) Right ("Sped"): direction and speed of the twists (–100 to +100%)

Selecting the twist waveform – F2 (FORM H) and F3 (FORM V)

To select the modulation waveform in the horizontal direction, press F2 (FORM H), and to select the modulation waveform in the vertical direction, press F3 (FORM V).

Pressing either F2 or F3 cycles through the following possibilities:

SINE (sine wave) → PARAB (parabola) → TRIANG (triangular wave) → RECT (square wave) → CIRCLE (circle) → CUBIC (cubic polynomial)

Stopping the twist motion – F5 (LOCK)

Use the following procedure.

1 Press F5 (LOCK), turning it on.

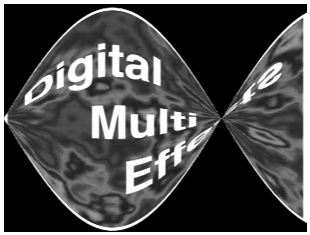
This stops the twisting.

2 Turn the right knob to adjust the twisting phase.

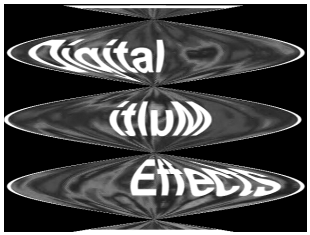
• Right knob ("Ofst"): phase offset (–16 to +16)

Rotating the axis of twisting through 90 degrees – F6 (SLANT 90)

Press F6 (SLANT 90), turning it on.



Twist SLANT 90: OFF



Twist SLANT 90: ON

EXPLOSION Settings – 132

EXPLOSION provides an effect of the image expanding and breaking into pieces.
With the second set of soft key indications shown in the NONLINEAR menu, select F6 (EXPLOSION) to display the EXPLOSION menu.

EXPLO-SION	MASK PATTERN				PIXEL			

EXPLOSION menu soft key indications

The following are some of the operations carried out in this menu.

Applying an explosion effect – F1 (EXPLOSION)

Use the following procedure.

1 Press F1 (EXPLOSION), turning it on.

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2 Set the “Transition” parameters.
- Left knob (“Trns”): amount of pixel movement (0 to 100%)
- Center knob (“Curv”): amount of pixel movement at the periphery of the image (0 to 100%)

When pattern is “CIRCLE”:
- Right knob (“Sprl”): degree of curvature of path of transition (–100 to +100%)

When pattern is other than “CIRCLE”:
- Right knob (“Asp”): aspect ratio of mask pattern (–100 to +100%)

Selecting the mask pattern – F2 (MASK PATTERN)

Use the following procedure.

1 Press F2 (MASK PATTERN), to select the mask pattern.

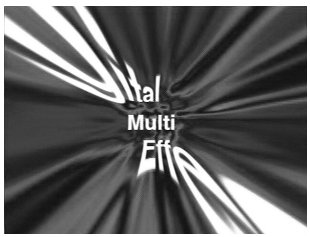
2 Adjust the position parameters.
- Left knob (“X”): x-coordinate of center of pattern (–5 to +5)
- Center knob (“Y”): y-coordinate of center of pattern (–4 to +4)

Breaking the image into pixels – F5 (PIXEL)

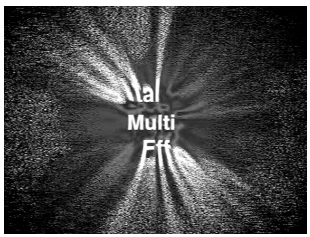
Use the following procedure.

1 Press F5 (PIXEL), turning it on.

2 Adjust the “PIXEL” parameters.
- Left knob (“Dens”): degree to which portion of image to which effect is applied disappears (0 to 100%)
- Center knob (“Rndm”): degree to which pixel position becomes more randomized further from the center (0 to 100%)



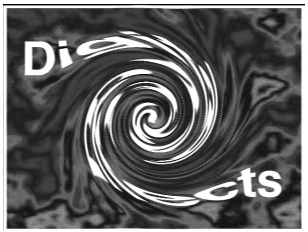
Explosion PIXEL: OFF



Explosion PIXEL: ON

SWIRL Settings – 133

SWIRL applies a swirling effect to the image.



With the second set of soft key indications shown in the NONLINEAR menu, select F7 (SWIRL) to display the SWIRL menu.

SWIRL					PIXEL			

SWIRL menu soft key indications

The following are some of the operations carried out in this menu.

Applying a swirl effect – F1 (SWIRL)

Use the following procedure.

1 Press F1 (SWIRL), turning it on.

2 Adjust the parameters for the following items.

Item	Setting	Knob adjustments of parameters
“Transition”	Select the transition type.	Left (“Trans”): degree of winding (0 to 100%)
“Angle & Area”	Select the amount of turning and size.	Left (“Cntr”): degree of turning at center (–8 to +8) Center (“Outr”): degree of turning outside ‘Area’ (–8 to +8) Right (“Area”): ‘Area’ of swirl (0 to 100%)
“Position”	Set the position of the center of the swirl.	Left knob (“X”): x-coordinate (–4 to +4) Center knob (“Y”): y-coordinate (–3 to +3)

Breaking the image into pixels – F5 (PIXEL)

Use the following procedure.

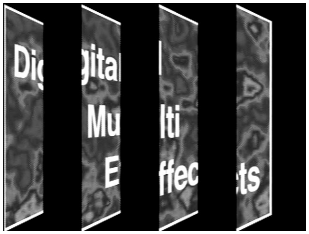
1 Press F5 (PIXEL), turning it on.

2 Adjust the “PIXEL” parameters.

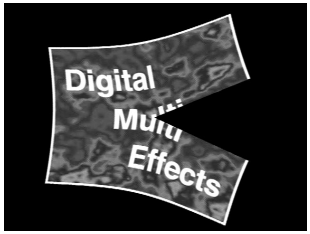
- Left knob (“Dens”): degree to which center of SWIRL effect disappears (0 to 100%)
- Center knob (“Rndm”): degree to which pixel position becomes randomized at the center (0 to 100%)

BLIND Settings – 134

BLIND divides the image into bars or wedges, and rotates the pieces, providing an effect suggestive of the vanes of a blind turning.



Blind MODE: BAR



Blind MODE: WEDGE

With the third set of soft key indications shown in the NONLINEAR menu, select F6 (BLIND) to display the BLIND menu.

BLIND	MODE							

BLIND menu soft key indications

The following are some of the operations carried out in this menu.

Applying a bar blind effect – F1 (BLIND) and F2 (MODE)

Use the following procedure.

1 Press F1 (BLIND), turning it on.

2 Press F2 (MODE) to select “BAR”.

3 Adjust the parameters for the following items.

Item	Setting	Knob adjustments of parameters
“Transition”	Select the transition type.	Left (“Rot”): number of rotations of pieces (–8 to +8) Center (“Pers”): degree of perspective (0 to 100%)
“Partition”	Select the way in which the bars are divided.	Left knob (“Wdth”): width of individual bars (0 to 100%) Center knob (“Pos”): position of divisions (–5 to +5) Right knob (“Angl”): direction of divisions (–8 to +8)

Applying a wedge blind effect – F1 (BLIND) and F2 (MODE)

Use the following procedure.

1 Press F1 (BLIND), turning it on.

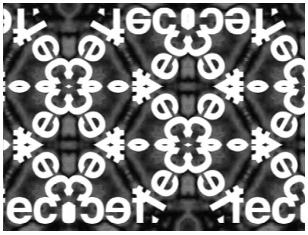
2 Press F2 (MODE) to select “WEDGE”.

3 Adjust the parameters for the following items.

Item	Setting	Knob adjustments of parameters
“Transition”	Select the transition type.	Left (“Rot”): number of rotations of pieces (–8 to +8) Center (“Pers”): degree of perspective (0 to 100%)
“Partition”	Select the way in which the wedges are divided.	Left knob (“No.”): width of individual wedges (0 to 100%) Center knob (“Phas”): position of divisions (–4 to +4)
“Position”	Set the position of the center of the rotation.	Left knob (“X”): x-coordinate (–4 to +4) Center knob (“Y”): y-coordinate (–3 to +3)

KALEIDOSCOPE Settings – 135

KALEIDOSCOPE provides a range of kaleidoscope-like effects on the image.



With the third set of soft key indications shown in the NONLINEAR menu, select F7 (KALEIDOSCOPE) to display the KALEIDOSCOPE menu.

KALEIDO-SCOPE		MIRROR H	MIRROR V		CYCLIC			

KALEIDOSCOPE menu soft key indications

The following are some of the operations carried out in this menu.

Applying the kaleidoscope effect – F1 (KALEIDOSCOPE)

Use the following procedure.

1 Press F1 (KALEIDOSCOPE), turning it on.

2 Adjust the parameters for the following items.

Item	Setting	Knob adjustments of parameters
No. & Phase	Select the way in which the image is divided.	Left knob (“No.”): number of individual wedges (0 to 100%) Center knob (“Phas”): angle of divisions (–8 to +8)
Offset	Set the position of the center of the rotation.	Left knob (“H”): horizontal position (–4 to +4) Center knob (“V”): vertical position (–3 to +3)

Making mirror reflections of the kaleidoscope image – F3 (MIRROR H) and F4 (MIRROR V)

Use the following procedure.

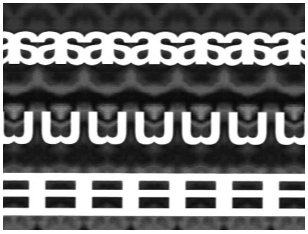
1. For a horizontal reflection press F3 (MIRROR H), turning it on.
2. For a vertical reflection press F4 (MIRROR V), turning it on.
3. Adjust the “Position” parameters to set the reflection point.
   • Left knob (“H”): horizontal position (–4 to +4)
   • Center knob (“V”): vertical position (–3 to +3)

Cyclically repeating original images and mirror images – F5 (CYCLIC)

Press F5 (CYCLIC), turning it on.

MULTI MIRROR Settings – 136

MULTI MIRROR provides the effect of reflecting the image in a pair of parallel mirrors (either horizontal or vertical or both) at right angles to the plane of the image, thus giving a repeated effect of alternately reflected sections of the image.



With the fourth set of soft key indications shown in the NONLINEAR menu, select F6 (MULTI MIRROR) to display the MULTI MIRROR menu.

MULTI MIRROR menu soft key indications

The following operation is carried out in this menu.

Applying the “multi-mirror” effect – F1 (MULTI MIRROR)

Use the following procedure.

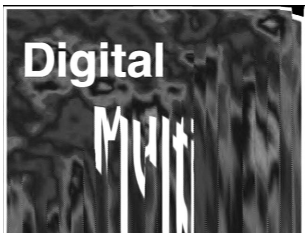
1 Press F1 (MULTI MIRROR), turning it on.

2 Adjust the parameters as follows.

Item	Setting	Knob adjustments of parameters
“Mirror H”	Set the horizontal mirrors.	Left (“Itvl”): spacing between the two mirrors (width of strip) (0 to 10) Center (“Pos”): center position of the unreflected image (–4 to +4) Right (“Ofst”): offset of the original image with mirrors held stationary (–4 to +4)
“Mirror V”	Set the vertical mirrors.	Left (“Itvl”): spacing between the two mirrors (width of strip) (0 to 10) Center (“Pos”): center position of the unreflected image (–3 to +3) Right (“Ofst”): offset of the original image with mirrors held stationary (–4 to +4)
“Slant angle”	Set the angle of the mirrors.	Right knob (“Angl”): mirror direction (–8 to +8)

MELT Settings – 137

MELT provides an effect on the image as though part of it were melting away.



With the fourth set of soft key indications shown in the NONLINEAR menu, select F7 (MELT) to display the MELT menu.

MELT	PATTERN	LOCK	DIREC-TION		PIXEL			

MELT menu soft key indications

The following are some of the operations carried out in this menu.

Applying the melting effect – F1 (MELT)

Use the following procedure.

1 Press F1 (MELT), turning it on.

2 Set the "Transition" parameters.
- Left knob ("Trns"): degree of transition (0 to 100%)
- Center knob ("Curv"): degree of stretching the image (0 to 100%)
- Right knob ("Rndm"): degree to which the melted portion is jagged (0 to 100%)

Selecting the shape of the portion beginning to melt – F2 (PATTERN)

Use the following procedure.

1 Press F2 (PATTERN), turning it on.

2 Adjust the parameters for the following items.

Item	Setting	Knob adjustments of parameters
"Border"	Select the shape of the portion beginning to melt.	Left ("Amp"): size of the waves (0 to 100%) Center ("Freq"): degree of fineness of the waves (0 to 100%) Right ("Ofst"): phase offset of the waves (–16 to +16)
"Slant angle"	Set the angle of the boundary.	Right knob ("Angl"): boundary angle (–100 to +100%)

Moving the waves at the melting boundary – F3 (LOCK)

Use the following procedure.

1 Press F3 (LOCK), turning it off.

2 Adjust the "Border" parameter.
- Right knob ("Sped"): direction and speed of wave movement (–100 to +100%)

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Changing the vertical direction of melting – F4 (DIRECTION)

Press F4 (DIRECTION) to toggle the direction of melting vertically.

Breaking the melting part of the image into pixels – F5 (PIXEL)

Use the following procedure.

1 Press F5 (PIXEL), turning it on.

2 Adjust the “PIXEL” parameters.

- Left knob (“Dens”): degree to which portion of image to which melting effect is applied disappears (0 to 100%)
- Center knob (“Rndm”): degree to which pixel position becomes more randomized further from the center (0 to 100%)

Lighting

Lighting function provides the effect of lighting on an image.

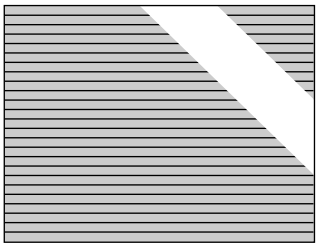
When the HKDS-7061 and HKDS-7071 are both installed, you can use the lighting functions on both DME channels 1 and 2. When only the HKDS-7061 is installed, you can use the lighting functions on DME channel 2 only.

Options installed	**HKDS-7061 and HKDS-7071**		**HKDS-7061 only**
Channel	DME 1	DME 2	DME 2
LIGHTING	Available	Available	Available

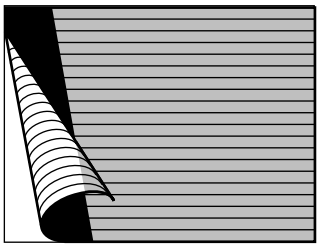
Note

It is not possible to apply two or more of the lighting, mask, and border effects simultaneously.

For an image to which nonlinear effects are not applied, there are two lighting effects: PLANE (overall reflection) and BAR (strip reflection). For an image to which nonlinear effects are applied, the two lighting effects are: PLANE and PRESET. The PRESET mode uses a reflection pattern specific to the particular effect.



BAR



PRESET (for PAGE TURN)

These examples show the lighting at maximum intensity. Reducing the intensity makes the image visible under the lighting.

Effect Selection – 300

Top Menu Display

The lighting effects are selected from the LIGHT EFFECT menu.

LIGHT EFFECT menu soft key indications

Selection operation

In the LIGHT EFFECT menu, press the required function key as shown in the following table to select the effect.

Function key	Function	See page
F1 (LIGHTING)	Lighting settings	See below

LIGHTING Settings – 301

In the LIGHT EFFECT menu, press F1 (LIGHTING) to display the LIGHTING menu.

LIGHTING menu soft key indications

The following are some of the operations carried out in this menu.

Switching the lighting on and off – F1 (LIGHT)

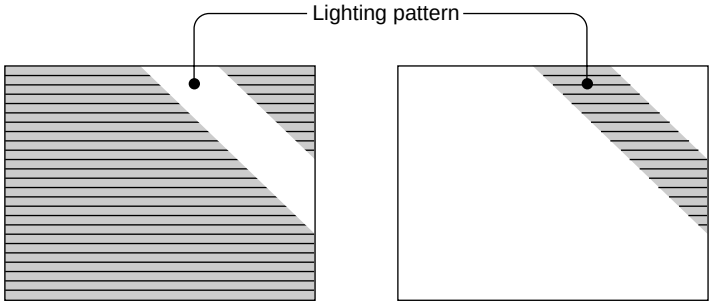
Press F1 (LIGHT).
When this is set to “ON”, the lighting settings are enabled.

Selecting the lighting pattern – F2 (PATTERN SELECT)

Press F2 (PATTERN SELECT).
Pressing F2 cycles through the available lighting patterns, as follows.
For linear effects: "PLANE" → "BAR"
For nonlinear effects: "PLANE" → "PRESET"

Inverting the lighting area – F4 (LIGHT AREA)

Press F4 (LIGHT AREA).
Pressing F4 toggles between "NORMAL" and "INVERT".
When set to "INVERT", the sense of the lighting pattern is reversed, so that the area outside the lighting pattern is illuminated and the area inside the lighting pattern is not illuminated.



Selecting lighting with a changing color – F5 (HUE ROT)

It is possible to provide continuously varying colors for the light falling on the "Light" region (highlights) and the "Shade" region *(see "Setting the lighting intensity" on the next page)*.
Press F5 (HUE ROT), turning it on, then position the line cursor on "Light Color" or "Shade Color" (this latter appears only for page turn, roll, cylinder and sphere effects), then adjust the following parameters.

- Left knob ("Lum"): luminance (0 to 100%)
- Center knob ("Sat"): saturation (0 to 100%)
- Right knob ("Sped"): rate of change of hue per frame (–12 to +12°)

Adjusting the shape of the lighting pattern – Shape

Align the line cursor with “Shape” (this does not appear when the pattern selection is “PLANE”), then adjust the following parameters.

- Left knob (“Size”): pattern size (0 to 100%)
- Center knob (“Soft”): softness of the edge of the pattern (0 to 100%)
- Right knob (“Ofst”): offset (parallel displacement) of the pattern position (–10 to +10 when pattern selection is “BAR”).

Rotating the lighting pattern (for “BAR”, or “PRESET” for “SPLIT” or “MIRROR” only) – Position

When the pattern selection is “BAR” or, when it is “PRESET” for “SPLIT” or “MIRROR” effects only, it is possible to rotate the lighting pattern.

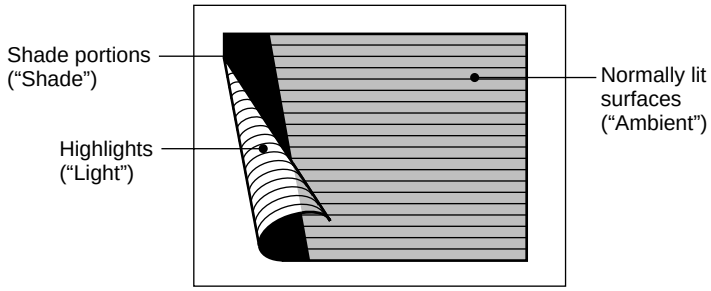
Align the line cursor with “Position”, then adjust the following parameter.

- Right knob (“Angl”): direction and angle through which you wish to rotate pattern (–8 to +8).

Setting the lighting intensity – Intensity

Using the lighting effects, it is possible to adjust the lighting intensity of the following three regions, depending on the pattern.

- “Light” region: the highlight region.
- “Ambient” region: the remainder of the uniformly illuminated surface around the highlights.
- “Shade” region: the region in shade.



The three regions for which it is possible to adjust the lighting intensity

The relationship between the pattern selection and the different intensity regions for which you can actually make a setting is as shown in the following table.

Pattern selection	Intensity regions for which setting possible
“PLANE”	“Light”
“PRESET” for page turn, roll, cylinder and sphere effects	“Light”, “Ambient” and “Shade”
Others	“Light” and “Ambient”

To adjust the intensities for these different regions, align the line cursor with “Intensity”, and adjust the following parameters (some of which may not appear, depending on the pattern selection).
• Left knob (“Lght”): “Light” region (0 to 100%)
• Center knob (“Ambt”): “Ambient” region (0 to 100%)
• Right knob (“Shad”): “Shade” region (0 to 100%)

Setting the lighting colors – Light Color/Shade Color

It is possible to select independently the lighting colors for highlights (“Light Color”) or shade (“Shade Color”).
Align the line cursor with “Light Color” or “Shade Color” (this latter appears only for page turn, roll, cylinder and sphere effects), then adjust the following parameters.
• Left knob (“Lum”): luminance (0 to 100%)
• Center knob (“Sat”): saturation (0 to 100%)
• Right knob (“Hue”): hue (0 to 359.99°)

Chapter 6
Input/Output Signal Operations

DME Selection and Input/Output Signals 6-2
Selecting Input/Output Operations – 50 6-3
Video Signal and Key Signal Settings – 51 6-4
Inverting the Input Signal – 55 6-6

DME Selection and Input/Output Signals

This section describes DME selection and the input and output signals.

DME selection

The HDS-7150 can use either an internal DME (HKDS-7061 and HKDS-7071) or an external DME (an HDME-7000 connected to the EXT DME 1/2 connectors).

Selecting the DME

In the SYSTEM CONFIG menu (*see Volume 1*), press F8 (DME CONFIG), and select one of the following.
INT: Use internal DME (HKDS-7061 and HKDS-7071)
EXT: Use external DME (HDME-7000)

Note

It is not possible to use the internal DME and an external DME simultaneously.

Input/output signals

Input/output signals using the internal DME

Following settings are applied.

DME channel	Buses	Cross-points
DME 1	AUX 1/2/3	DME1V, DME1K
DME 2	VIDEO MOD	DME2V, DME2K

Input/output signals using an external DME

Following settings are applied.

DME channel	Buses	Cross-points
DME 1	Set in DME IF menu. (See Volume 1)	DME1V, DME1K
DME 2		DME2V, DME2K

Selecting Input/Output Operations – 50

Here, input/output operations refer to the selection of the video and key signals used by the internal DME.

The IN/OUT menu soft key indications appear as follows.

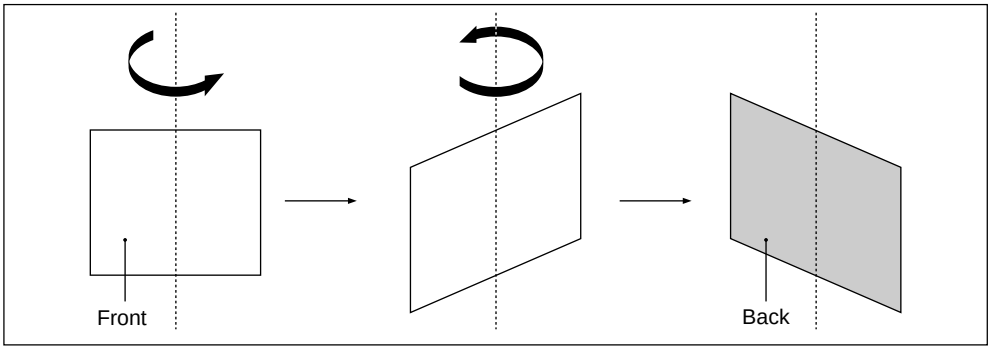
IN/OUT menu soft key indications

Selection operation

Press the required function key as shown in the following table to select the required menu.

Function key	Function	See page
F1 (IN/OUT SELECT)	Select input video and key signals.	6-4
F5 (INPUT INVERT)	Invert the input signal.	6-6

Select the video and key signals for each of the front and back of the image.
The following figure illustrates the conceptual front and reverse, or back, sides of the image.



Conceptual front and back sides

In the IN/OUT menu, press F1 (IN/OUT SELECT), and the soft key indications appear as follows.

FRONT VIDEO	FRONT KEY	FRONT KEY MODE	FRONT KEY INVERT		SEPARATE SIDE	AUTO KEY SELECT		FRONT /BACK

IN/OUT SELECT menu soft key indications

Selecting the front video and key signals

Use the following procedure.

1 Press F1 (FRONT VIDEO).

The system is now ready to accept a front video selection.

2 Enter the button number (0 to 63) of the video signal to be selected using the numeric keypad, and press the ENTER button.

This selects the video signal.

3 To select the key signal by button number, press F2 (FRONT KEY).
To select the key signal previously assigned to the selected video signal, press F6 (AUTO KEY SELECT), turning it on, and skip to step **5**.

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4 Enter the button number (0 to 63) of the key signal to be selected using the numeric keypad, and press the ENTER button.

This selects the key signal.

5 Press F3 (FRONT KEY MODE) to select the key type as follows.

Internal: Use the box defined as the effective image area in the section "CROP Settings – 13" *(page 5-16)* as the key source.

External: Use an external key signal as the key source.

Luminance: Use the luminance of the input video signal as the key source.

Key Off: Force the key signal level to zero.

6 If you selected "External" or "Luminance" in step **5**, set the following parameters.

- Center knob ("Clip"): reference level for key signal generation (–10 to +110%)
- Right knob ("Gain"): key sensitivity (–100 to +100%)

7 To invert the key signal, press F4 (FRONT KEY INVERT), turning it on.

8 To use different signals for the two sides of the video image, press F5 (SEPARATE SIDE), turning it on.

Selecting the back video and key signals

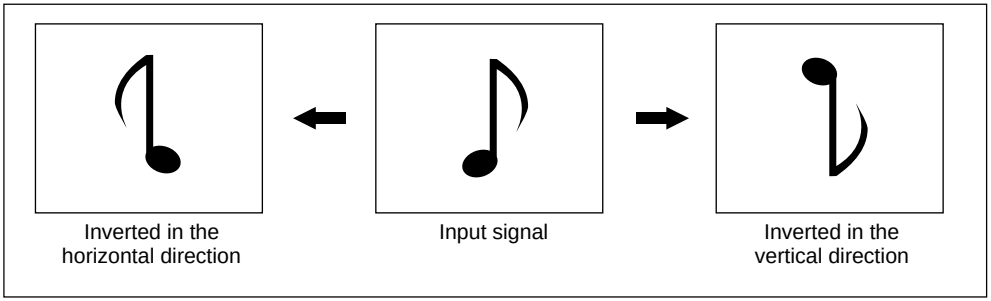
To select the video and key signals for the back of the image, press F8 (FRONT/BACK).

The indications for F1 to F4 change, allowing the video and key signals to be selected for the back of the image.

For details of the settings, see the previous section "Selecting the front video and key signals".

Inverting the Input Signal – 55

This menu inverts the input video and key signals horizontally and vertically.



Inverting the input signal

In the IN/OUT menu, press F5 (INPUT INVERT) to display the INPUT INVERT menu.

INPUT INVERT menu soft key indications

The following are some of the operations carried out in this menu.

Inverting the front video and key signals

- To invert the signals in the horizontal direction, press F1 (FRONT H INVERT), turning it on.
- To invert the signals in the vertical direction, press F2 (FRONT V INVERT), turning it on.

Inverting the back video and key signals

- To invert the signals in the horizontal direction, press F3 (BACK H INVERT), turning it on.
- To invert the signals in the vertical direction, press F4 (BACK V INVERT), turning it on.

Chapter 7
Keyframe Effects

Overview **7-2**
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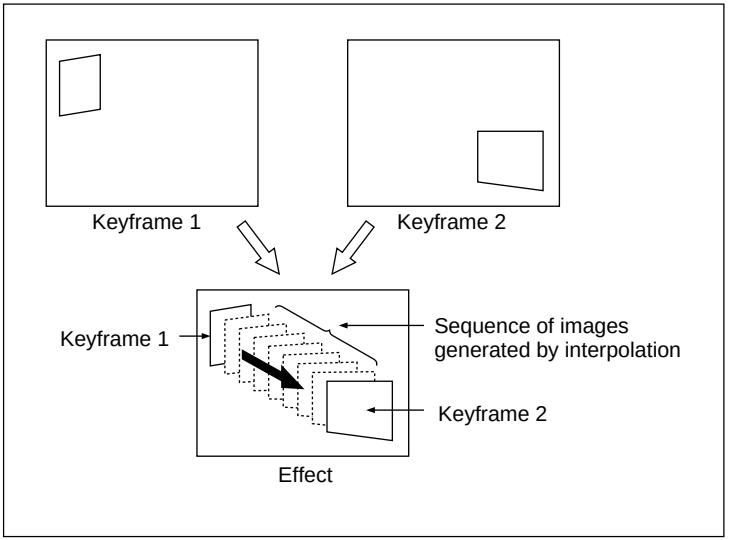
Overview

This section gives an overview of keyframes, and describes the operations required.

Keyframes and Effects

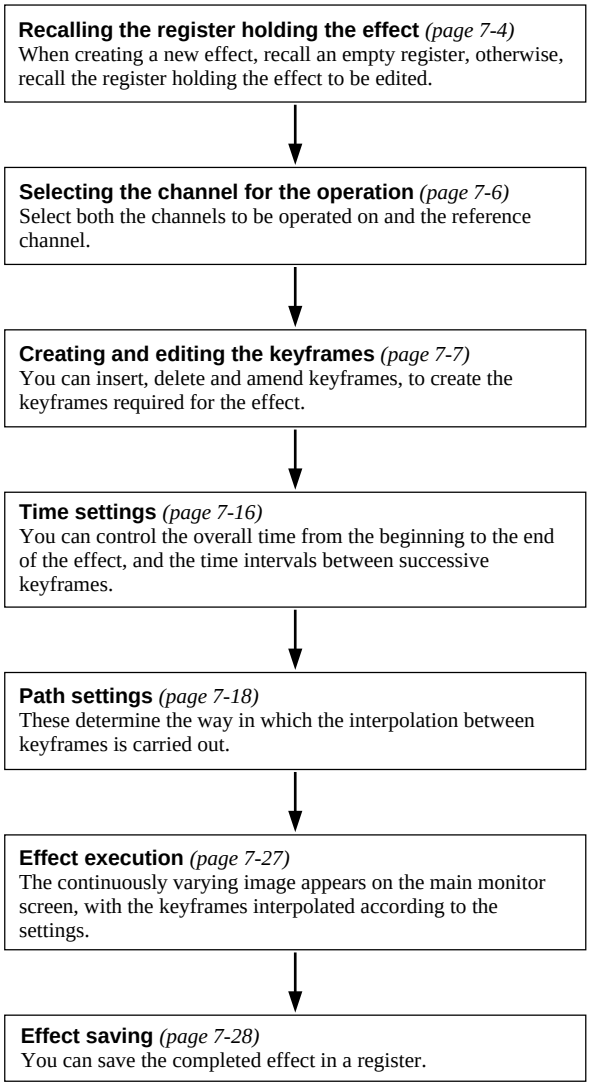
A keyframe is a set of data which determines the instantaneous pattern of an effect during a transition.
An effect, in turn, is obtained from a sequence of keyframes, interpolated along the time axis so as to appear continuous.



Obtaining an effect from a sequence of keyframes

Basic Procedure

The following procedure covers the steps from generating a keyframe to carrying out the effect. See the pages shown in parenthesis for detailed descriptions of the operations.


Recalling the register holding the effect *(page 7-4)*
When creating a new effect, recall an empty register, otherwise, recall the register holding the effect to be edited.
Selecting the channel for the operation *(page 7-6)*
Select both the channels to be operated on and the reference channel.
Creating and editing the keyframes *(page 7-7)*
You can insert, delete and amend keyframes, to create the keyframes required for the effect.
Time settings *(page 7-16)*
You can control the overall time from the beginning to the end of the effect, and the time intervals between successive keyframes.
Path settings *(page 7-18)*
These determine the way in which the interpolation between keyframes is carried out.
Effect execution *(page 7-27)*
The continuously varying image appears on the main monitor screen, with the keyframes interpolated according to the settings.
Effect saving *(page 7-28)*
You can save the completed effect in a register.

Registers and Channels

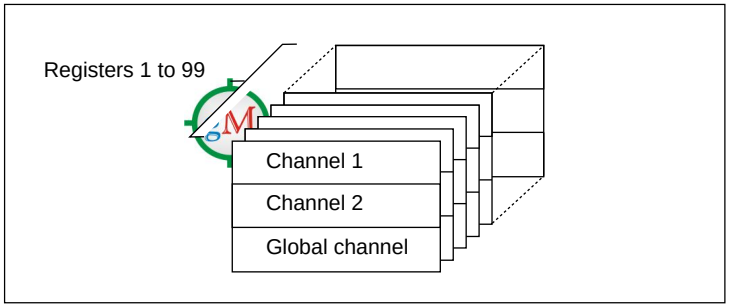
This section describes how to access the registers used to hold effects, and also how to perform channel selection.

Accessing Registers

Register organization

The memory used to store the collection of keyframes making up an effect is divided into notional registers, numbered from 1 to 99. Each register can hold from 1 to 99 keyframes.
Each register is capable of holding effects for each of three channels (channels 1 and 2 and the global channel).

The total capacity for three channels is 2000 keyframes.



Register organization

When a register is recalled, regardless of the current channel selection, the entire contents of the register (that is, for all three channels) are recalled.

Accessing a register

Use the following procedure to access a register in which to save an effect.

1 In the effect store and recall section, press the RECAL EFF button.

2 Enter the number of the register to be accessed from the numeric keypad.

- When generating a new effect, access a register which is not currently holding an effect. To access the next higher numbered empty register above the current register, enter a period (“.”).
- To recall the currently recalled register in the state before the current changes, enter zero.

3 Press the ENTER button.

This accesses the specified register.

Recalling registers by operating the switcher (the Keyframe-LINK™ function)

You can control effects created on the internal DME from the BKDS-7017 switcher control panel. This is referred to as the keyframe link function.
It requires the BKDS-7017 to be connected to a BKDS-7030 Keyframe Control Panel Unit.

Channel Selection

The creation and editing of keyframes and execution of effects takes place on the selected channel or channels, which are known as the active channels.
If more than one channel is selected, you must select one of them to be the reference channel, to be the basis for operations and menu displays. If you select a single channel, that channel automatically becomes the reference channel.
For example, the NEXT KF button has the effect of moving forward in time to the next keyframe, but the keyframes on the active channels do not necessarily come at the same time points. In such a case, the NEXT KF button moves forward to the next keyframe on the reference channel, ignoring the keyframes on the other active channels; the other active channels move forward to the corresponding time point.

Selecting the active channels and reference channel

Use any of the following operations.

- Press a button in the channel selection section of the control panel.
- Click on a channel indication in the active window channel display.

The button for the last selected channel lights green, and the channel indication also appears in green, showing that this is the reference channel.

To make more than one channel active, follow the procedure described on pages 2-11 and 4-12.

Generating and Editing Keyframes

This section describes how to generate and edit keyframes, and how to make time settings.

Creating New Keyframes

Creating new keyframes

When creating a new keyframe, first access an empty register, then use the following procedure to create the required number of keyframes in turn, to build the effect.

1 Select the active channels.
If you select more than one channel, it is then necessary to ensure that the channel required to be the reference channel is selected last.

For details see pages 2-11 and 4-12.

2 Press the KF EDIT ENABL button in the keyframe operation section, turning it on.

This switches the system to edit mode, allowing keyframes to be created and edited.

3 Create the initial keyframe.
To return the initial image state to the conditions set in the setup, press the CLR WORK BUFF button twice in succession.

4 Press the BEFR/INSRT button.

This inserts the current keyframe as keyframe 1.

5 Create the next keyframe.

(Continued)

6 Press the BEFR/INSRT button.

This inserts the current keyframe (keyframe 2) after keyframe 1.

Repeat steps **5** and **6** to create all the necessary keyframes.

When inserting keyframes, the keyframe duration (that is, the time from one keyframe to the next) is normally set to 1 second.
It is also possible to change this value if required.

For details see the section "Time Settings" (page 7-16).

Parameter Settings Which Can Be Included in Keyframes

Some of the parameter settings on the control panel can be included in keyframes, and others cannot.
Basically, the settings in setup menus (those with page numbers 7xx) cannot be included, and the remainder of the settings can be.
There are, however, exceptions as listed in the following table.

Parameters which cannot be included		**Parameters which can be included**	
Menu name and (page) number	**Parameters**	**Menu name and (page) number**	**Parameters**
BKGD – 11	Super Black Level	PROCESS CONTROL 2 – 717	Wrap Around (on/off setting)
EFFECT RUN MODE – 71	Default KF Dur, Xpoint Hold (on/off setting)		

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Editing Keyframes

Specifying the edit point

When inserting, editing or deleting a keyframe, it is necessary to stop the effect at the appropriate point on the timeline. Such a point is referred to as an edit point, and it is possible to specify any point, whether on a keyframe or between two keyframes.
Use any of the following methods to stop the effect on the edit point.

Trackball operation

Press the RUN CTRL button in the transformation operation section, turning it on, then turn the trackball or Z-ring to position the effect at the required point.
Using this method it is possible to stop the effect between keyframes.

Button operation

Using the keyframe shift section, carry out one of the following operations. Note that if more than one channel is active, the edit point is specified in terms of the reference channel.

- To move to the next keyframe after the current position where the effect is stopped, press the NEXT KF button.
- To move to the last keyframe before the current position where the effect is stopped, press the PREV KF button.
- To move to a keyframe specified by number, press the TC/GOTO KF button, then enter the required number from the numeric keypad.
- To move to a specified time code, hold down the SHIFT button while pressing the TC/GOTO KF button, then enter the required time code from the numeric keypad.

Mouse operation

Display the TIME LINE menu *(page 9-8)*, and click on the desired item.

Inserting a keyframe

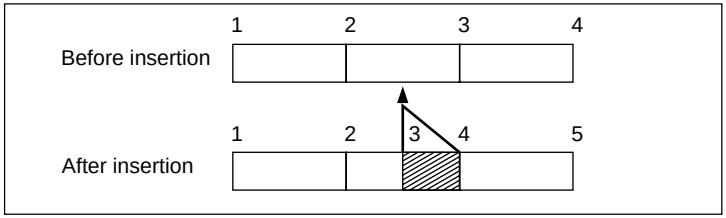
Use the following procedure to insert a keyframe into an already created effect.

1. Select the active channels and the reference channel.
2. Stop the effect on the required edit point.
3. Press the KF EDIT ENABL button, turning it on.
4. Create the keyframe to be inserted.
5. • To insert after the keyframe at the edit point or when the edit point is intermediate between two keyframes, press the BEFR/INSRT button.
   • When the edit point is on a keyframe, to insert before the keyframe hold down the SHIFT button and press the BEFR/INSRT button.

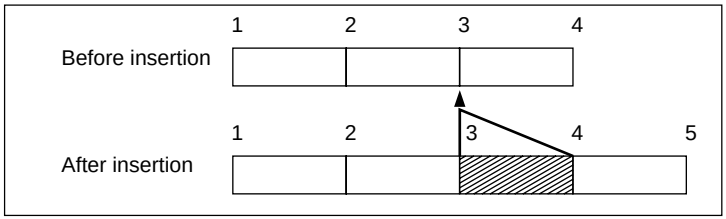
   This carries out the insertion.

Relation between insertion position and changes in effect duration

When the edit point is intermediate between two keyframes as shown below, inserting a keyframe does not change the timing of any other keyframes, and the total effect duration remains the same.



On the other hand, when the edit point is at the position of an existing keyframe as shown below, inserting a keyframe either before or after the existing keyframe changes the total effect duration.



If, however, the CNST DUR button is lit when you carry out the insertion, the effect duration again does not change, and the inserted keyframe has a duration of zero.

Amending a keyframe

Use the following procedure to amend an already created keyframe.

1. Select the active channels and the reference channel.
2. Stop the effect on the required edit point.

   When the edit point is on a keyframe, that keyframe will be amended. If the edit point is intermediate between two keyframes, the immediately previous keyframe will be amended.
3. Press the KF EDIT ENABL button, turning it on.
4. Amend the keyframe.
5. Press the MOD button.

   This carries out the amendment.

Amending a number of keyframes together

To carry out the same amendment to all keyframes in a specified range, use the following procedure.
When more than one channel is active, the amendment is carried out based on the specification for the reference channel.

1. Select the active channels and the reference channel.
2. Stop the effect on or after the first keyframe in the range to be amended.
   This operation is not necessary if you are going to specify the starting keyframe by number, or if you wish to amend all keyframes.
3. Press the KF EDIT ENABL button, turning it on.
4. Amend the keyframe.
5. Press the MOD ALL button.

   The MOD ALL button lights green.

6 Use one of the following methods to specify the range for amendment.

- To carry out the amendment from the current keyframe to the end of the effect, no input is necessary. Continue to step **7**.
- To specify the range by keyframe numbers, input the starting keyframe number, press the ENTER button, input the ending keyframe number, and press the ENTER button.
- To apply the amendment to all keyframes, enter a period ".", and press the ENTER button.
- To apply the amendment to all keyframes from a specified keyframe to the end of the effect, input the starting keyframe number, press the ENTER button, enter a period ".", and press the ENTER button.

7 Press the MOD button.

This carries out the amendment over the specified range of keyframes.

Keyframe amendment: absolute and relative changes

When amending a number of keyframes together, depending on the way in which you change the keyframe parameter values, the effect on the other keyframes changes.

For example: changing X = 1.0000 to X = 1.5000

- **Entering an absolute value using the numeric keypad and ENTER button or pressing CLR WORK BUFF button:** the values of X in the other keyframes all change to the same value (1.5000 in this example).
- **Amending the value using the control knobs, trackball, Z-ring or numeric keypad and TRIM button or pressing CTR button:** the same difference (+0.5000 in this example) is added to the values of X in the others.

Deleting keyframes

Normally, regardless of the position of the edit point, when you delete a keyframe the total duration of the effect changes. If you do not wish the deletion to change the total duration of the effect, first press the CNST DUR button in the duration setting section, turning it on.

Use the following procedure to delete a keyframe (or keyframes).

1 Select the active channels and the reference channel.

2 Stop the effect on the required edit point.
This operation is not necessary if you are going to specify a range of keyframes to delete.

When the edit point is on a keyframe, that keyframe will be deleted. If the edit point is intermediate between two keyframes, the immediately previous keyframe will be deleted.

3 Press the KF EDIT ENABL button, turning it on.

4 To delete more than one keyframe, use either of the following methods to specify the range to be deleted.
- To specify the range by keyframe numbers, press the MOD ALL button, input the starting keyframe number, press the ENTER button, input the ending keyframe number, and press the ENTER button.
- To delete all keyframes from a specified keyframe to the end of the effect, press the MOD ALL button, input the starting keyframe number, press the ENTER button, enter a period ".", and press the ENTER button.

5 Press the DEL button.

This carries out the deletion.

Undelete function

Until you delete another keyframe, you can always recover the last deleted keyframe, which is saved in an undelete buffer. You can reinsert this keyframe at any position, using the following procedure.

1 Stop the effect on the required edit point.
Regardless of the position from which the keyframe was deleted, you can reinsert it at any position. When the edit point is on a keyframe, the following procedure inserts the previously deleted keyframe immediately before the edit point.

2 Press the KF EDIT ENABL button, turning it on.

3 Hold down the SHIFT button and press the UNDEL/UNDO button.

This reinserts the keyframe from the undelete buffer.

Undo function

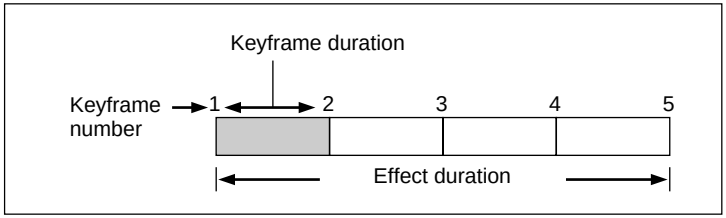
To undo the effect of the last operation, and return to the state before the edit, press the UNDEL/UNDO button.
This applies to operations with the BEFR/INSRT, DEL, MOD, and KF/DUR EFF buttons.

Time Settings

Keyframe duration and effect duration

Set the keyframe duration and effect duration to determine the time taken by the effect.

- The keyframe duration refers to the interval elapsing between one keyframe and the next. This has a maximum setting of 59 seconds 29 frames.
- The effect duration refers to the duration of the entire effect, from the first keyframe to the last keyframe. This has a maximum setting of 9 minutes 59 seconds 29 frames.



Schematic illustration of keyframe duration and effect duration

Setting the keyframe duration

The default value for keyframe duration is 1 second. Use the following method to change this value for an individual keyframe.

It is also possible to change the default keyframe duration. For details see page 7-30.

1 Select the active channels and the reference channel.
If a number of channels are active, with different settings for the keyframe duration, the following procedure sets them to be the same.

2 Stop the effect on the keyframe whose duration is to be changed.

The time from this keyframe to the next will be changed.

3 Press the KF EDIT ENABL button, turning it on.

4 Hold down the SHIFT button and press the KF/DUR EFF button.

5 Enter the numeric value (seconds and frames) using the numeric keypad, and press the ENTER button.
For example, to enter 9 seconds 20 frames, enter “9.20”.

The maximum value which can be set is 59 seconds 29 frames.

Setting the effect duration

Use the following procedure.

1 Select the active channels and the reference channel.
If a number of channels are active, with different settings for the effect duration, the following procedure sets them to be the same.

2 Press the KF EDIT ENABL button, turning it on.

3 Press the KF/DUR EFF button.

4 Enter the numeric value (minutes, seconds and frames) using the numeric keypad, and press the ENTER button.
For example, to enter 3 minutes 7 seconds 15 frames, enter “3.7.15”. The maximum setting is 9 minutes 59 seconds 29 frames.

Maintaining a constant effect duration

If you do not wish a deletion or insertion of a keyframe to change the overall duration of the effect, first press the CNST DUR button in the duration setting section, turning it on.
In this state, when a keyframe is inserted or deleted, the positions of the other keyframes on the time axis do not change, and thus the total duration of the effect also remains unchanged.

Path Settings

These settings determine the way in which the elements defining the image change in the interpolated images. The term “path” is used to refer to the manner of interpolation.

Selecting Settings – 60

It is possible to select the interpolation path between keyframes separately for different items (three-dimensional transformations, or various special effects, for example), or alternatively you can make a single setting for all items.

Top menu display

The path setting items are selected from the PATH menu.
The PATH menu contains two sets of soft key indications, corresponding to the two sets of menu items. Press F8 (MORE) to toggle between the sets.

61 ALL	62 TRANS-FORM	63 BKGD EDGE	64 FREEZE RECUR		65 PICTURE MODIFY			MORE

PATH menu soft key indications (upper set)

66 VIDEO MODIFY	67 IN/OUT	68 MATTE						MORE

PATH menu soft key indications (lower set)

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Selection operation

In the PATH menu, press the required function key as shown in the following table to select the menu.

Upper set of soft key indications

Function key	Items set in the menu
F1 (ALL)	All items
F2 (TRANSFORM)	Three-dimensional transformations
F3 (BKGD EDGE)	BKGD & EDGE menu settings
F4 (FREEZE RECUR)	FREEZE & RECUR menu settings
F5 (PICTURE MODIFY)	PICTURE MODIFY menu settings

Lower set of soft key indications

Function key	Items set in the menu
F1 (VIDEO MODIFY)	VIDEO MODIFY menu settings
F2 (IN/OUT)	IN/OUT menu settings
F3 (MATTE)	Color matte generator settings

Basic Operations for Path Settings – 61 to 68

Making the same path setting for all items

To make the same path setting for all items, use the following procedure in the menu 61 (PATH ALL menu). When using the menus 62 to 68, follow the same procedure after making the necessary adjustments.

1 Stop the effect on the keyframe for which you wish to make the path setting.

This makes a path setting which affects the interpolation from this keyframe to the next keyframe.

2 In the PATH menu, press F1 (ALL).

The PATH ALL menu appears.

PATH ALL menu soft key indications

3 Press F3 (PREVIOUS) or F4 (NEXT) to select the path type. Pressing F4 cycles through the following possibilities: OFF → STEP → LINEAR → S-curve → Spline curve, and pressing F3 cycles through in the reverse direction. The spline curve setting, however, is only valid for the "TRANSFORM" item.
The different path settings are indicated on the menu by the following iconic representations.

- (OFF): Make no change as the effect proceeds.
- (STEP): Change stepwise at each keyframe. In other words, there is no interpolation in the interval between keyframes.
- (LINEAR): Interpolate linearly between keyframes. This maintains a constant speed of movement.
- (S-curve): Accelerate and decelerate around each key frame, so that the speed is maximum at the mid-point between two keyframes.
- (Spline curve): Use a spline curve to provide a smooth interpolation.

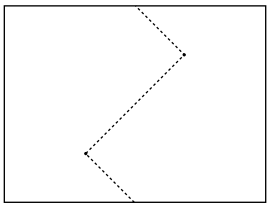
Hue path settings for "MATTE"

For the "MATTE" item, the hue path settings are indicated by the following iconic representations.

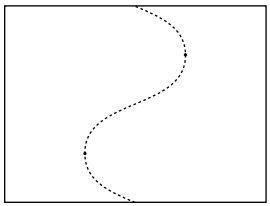
- : Rotate the hue clockwise when observed on a vectorscope.
- : Rotate the hue counterclockwise when observed on a vectorscope.
- S : Rotate the hue in whichever direction makes the path to the next keyframe shortest.
- L : Rotate the hue in whichever direction makes the path to the next keyframe longest.

4 If you selected a spline curve, adjust the parameters as follows.

Left knob ("Tens"): tension (–4 to +4)

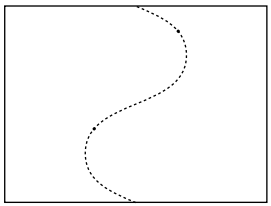


Tens=1

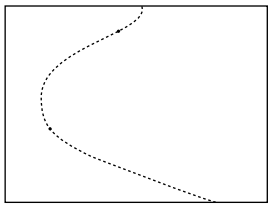


Tens=–1

Center knob ("Bias"): bias, that is, the gradient of the curve on a keyframe (–4 to +4)



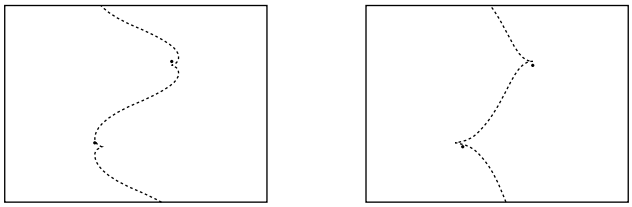
Bias=1



Bias=–1

(Continued)

Right knob (“Cont”): continuity (–4 to +4)



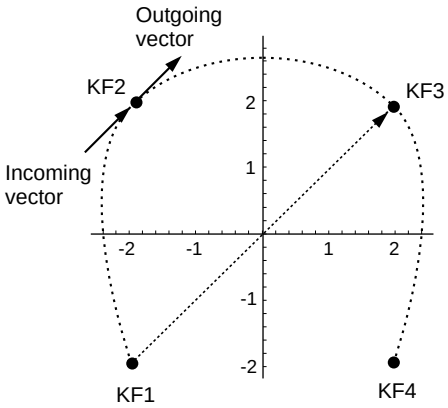
Cont=1 Cont=–1

Spline Curve Settings

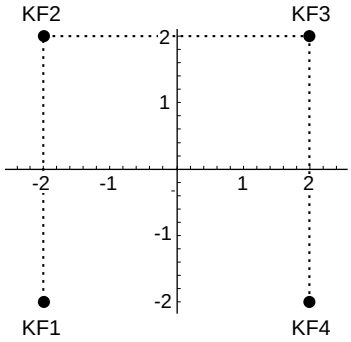
The following examples show how the keyframe interpolation path changes as you adjust the spline curve parameters. In the figures, the x- and y-axes represent the video image space, and the curve shows the transition from keyframe 1 (KF1) to keyframe 4 (KF4).

Tension adjustment

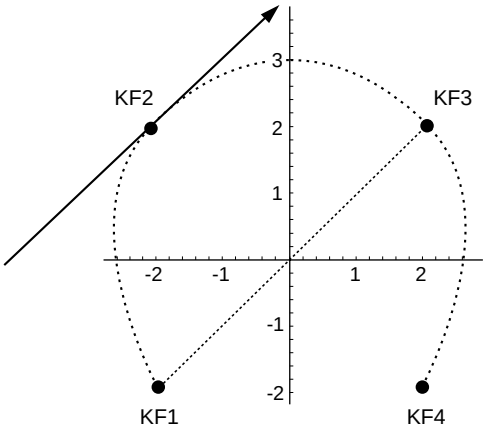
• Tension = 0
The figure shows the incoming vector and outgoing vector representing the path through the keyframe. Initially, both vectors are parallel to a straight line joining the keyframe 1 and keyframe 3 positions.



• Tension = +1.00
The paths between adjacent pairs of keyframe points are straight lines. The effect appears to lose speed as it passes through keyframe point 2.

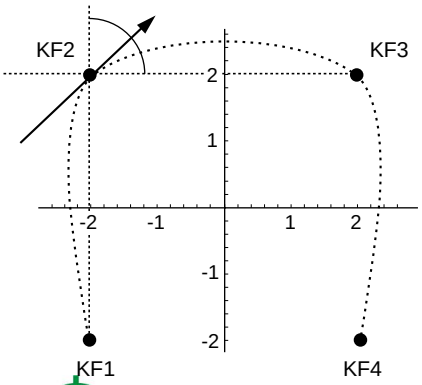


• Tension = –1.00
The path is maximally slack as it passes through the keyframe point 2, with a speed twice that when the tension is zero.

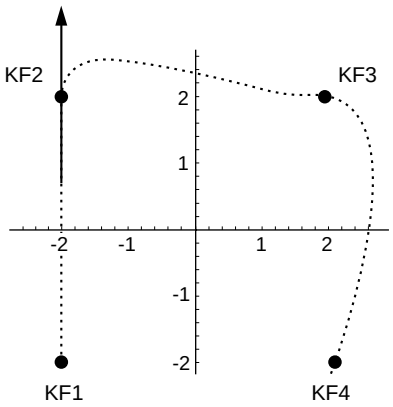


Bias adjustment

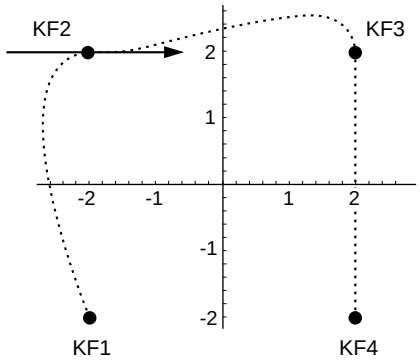
• Bias = 0
The direction of the path through keyframe point 2 is parallel to a line joining keyframe points 1 and 3.



• Bias = +1.00
The direction of the path through keyframe point 2 is biased toward the direction from keyframe point 1, and it only curves toward keyframe point 3 after leaving point 2.



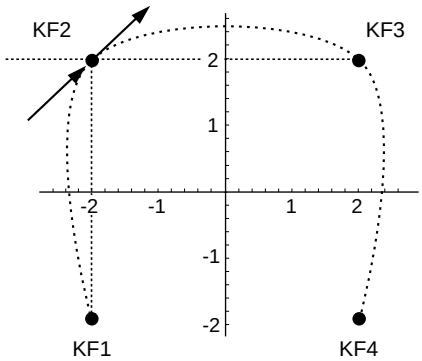
• Bias = –1.00
The direction of the path through keyframe point 2 is biased in the direction toward keyframe point 3, and it adopts this orientation before reaching point 2.



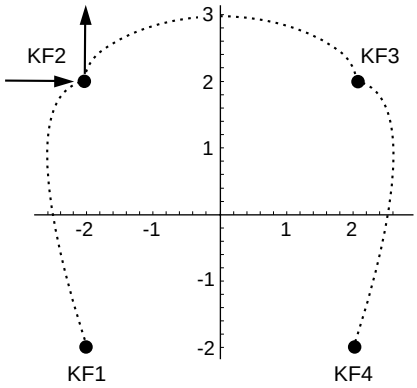
Continuity adjustment

This allows the directions of the incoming and outgoing vectors to be different. You can use it to make the passage through a keyframe discontinuous, rather like a bouncing ball.

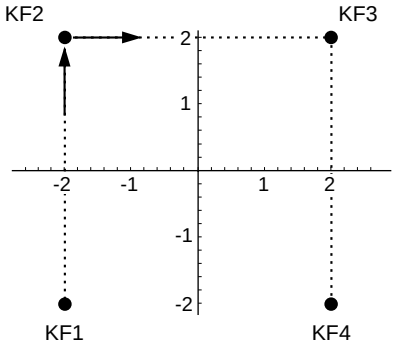
• Continuity = 0
The movement through the keyframe point is smooth.



• Continuity = +1.00
The path is already in the direction toward point 3 as it enters keyframe point 2, but then reverts to the direction from point 1 as it leaves. Thus the direction of the path is not continuous as it passes the keyframe.



• Continuity = –1.00
In this case the direction of the path is again not continuous through keyframe point 2, but this time the incoming direction is that from point 1, and the outgoing direction is that toward point 3. Thus the effect of this setting is similar to setting the tension to +1.00, but the speed through the keyframe point is different.



Executing Effects

You can execute the effect in the currently recalled register, using the RUN button or trackball and Z-ring, to view the final effect. To execute the effect, use the following procedure.

Executing the effect with the trackball and Z-ring

Use the following procedure to execute the effect with the trackball and Z-ring.

1 Select the active channels and the reference channel.

2 In the transformation operation section, press the RUN CTRL button, turning it on.

3 To execute the effect forwards, turn the trackball horizontally to the right or turn the Z-ring clockwise. To execute the effect backwards, turn in the opposite direction.

For one complete turn approximately 12 seconds of effect are executed.

Executing the effect with the RUN button

Use the following procedure to execute the effect automatically.

1 Select the active channels and the reference channel.
If you select more than one active channel, the execution position is determined with respect to the reference channel.

2 Press the RUN button in the effect execution section.

- When the REVS button is lit, the effect is executed backwards.
- When the STOP NEXT KF button is lit, the effect is executed up to the next keyframe.
- When the effect is stopped on the last keyframe, execution begins from the initial keyframe.

During execution, pressing the RUN button again stops the effect in progress. To restart the effect, press the RUN button again.

Returning to the initial keyframe

To return to the initial keyframe, press the REW button. Pressing the REW button while the REVS button is lit moves to the last keyframe.

Saving Effects

Saving Effects in Registers

Use the following procedure to save an effect you have created in a register.

1 Press the STORE EFF button in the effect store and recall section.

2 Enter the number of the register in which you wish to save the effect, using the numeric keypad.

- To specify a number other than the number already displayed, enter that number. To use the next empty register after the displayed register number, enter a period "." only.
- To save in the register whose number is displayed, there is no necessity to enter a number.

3 Press the ENTER button.

This saves the effect in the specified register.

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Effect Run Mode Settings – 71

The system provides the following settings for effect execution conditions.

- **Loop:** When the effect reaches the last keyframe, it automatically returns to the first keyframe, and repeats the effect according to the "Loop end time" setting.
- **Loop end time:** When looping effects in more than one channel, select whether the loop timing should be aligned with the longest effect, or independent for each channel.
- **Run together:** Ignores the current delegation, and runs the effect on all channels simultaneously.
- **Cross-point hold:** An effect is executed ignoring the cross-point information in the effect, and using cross-point selections from before the effect execution.
- **Default keyframe duration:** Selects the duration given to all newly-inserted keyframes.

The effect run mode settings use the EFFECT RUN MODE menu.

Displaying the EFFECT RUN MODE menu

Use the following procedure to display the EFFECT RUN MODE menu.

1 Display the first set of soft key indications in the EFFECT UTILITY menu (a top menu).

71 EFF RUN MODE	72 REGISTER	73 REGISTER NAME	74 CHANNEL COPY		77 DISK	78 COLOR MATTE		MORE

EFFECT UTILITY menu soft key indications

2 Press F1 (EFF RUN MODE).

The EFFECT RUN MODE menu appears.

LOOP	LOOP END TIME	RUN TOGETHER				XPOINT HOLD	DEFAULT KF DUR	SNAP SHOT XPOINT HOLD

EFFECT RUN MODE menu soft key indications

The following are some of the operations carried out in this menu.

Operation in the EFFECT RUN MODE menu

Making an effect loop – F1 (LOOP)

Press F1 (LOOP), turning it on.

Setting the loop mode – F2 (LOOP END TIME)

When looping effects in more than one channel, press F2 (LOOP END TIME) to select the mode for timing between channels.
Same End: All channels loop in time with the longest effect.
Independent: The channels loop independently.

Ignoring the current delegation and running the effect on all channels simultaneously – F3 (RUN TOGETHER)

To run the effects in currently unselected channels also together, press F3 (RUN TOGETHER), turning it on.

Holding cross-point selections from before the effect execution – F6 (XPOINT HOLD)

Press F6 (XPOINT HOLD), turning the “Xpoint Hold” setting to “On”.

Setting the default keyframe duration – F7 (DEFAULT KF DUR)

This setting determines the keyframe duration given to all newly-inserted keyframes when the CNST DUR button is off.
Use the following procedure.

1. Press F7 (DEFAULT KF DUR).
2. Enter the number of frames in the range 1 to 255 using the numeric keypad, and press the ENTER button.

Preventing the cross-point button assignments from changing when a snapshot is recalled – F8 (SNAPSHOT XPOINT HOLD)

Press F8 (SNAPSHOT XPOINT HOLD), turning it on.

Chapter 8
Effect Utilities

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Effect Utility Selection – 70

Effect utilities include operations to select the run mode of keyframe effects, and for manipulation of registers and files. This section describes how to get to the required menu from the top menu.

Top menu display

The effect utilities are all accessed from the EFFECT UTILITY menu.

EFFECT UTILITY menu soft key indications (set 1)

EFFECT UTILITY menu soft key indicationsn (set 2)

Selection operation

Press the required function key, as shown in the following table to select the required menu.

Selecting from the first set of soft key indications

Function key	Function	See page
F1 (EFF RUN MODE)	Set conditions for effect execution.	7-29
F2 (REGISTER)	Basic register operations such as copy and swap.	8-4
F3 (REGISTER NAME)	Change register names.	8-10
F4 (CHANNEL COPY)	Copy registers from one channel to another.	8-12
F5 (DISK)	Save and load registers on a floppy disk, and file manipulations on a disk.	8-15
F6 (COLOR MATTE)	Copy the color of the color matte generator.	8-25
F8 (MORE)	Switch to the second set of soft key indications.	—

Selecting from the second set of soft key indications

Function key	Function	See page
F1 (SNAPSHOT)	Save and recall snapshots.	8-28
F2 (SNAPSHOT NAME)	Change the name of a snapshot.	8-32
F3 (SNAPSHOT CH COPY)	Copy snapshots from channel to channel.	8-33
F8 (MORE)	Switch to the first set of soft key indications.	—

Register Utilities

Register Operations – 72

Using the REGISTER menu, you can carry out the following operations on specified registers.

Delete: Delete the contents of specified registers.

Copy: Copy the contents of specified registers to other registers.

Merge: Merge the contents of a specified register on the end of the currently recalled register, allowing the two effects to be executed consecutively.

Swap: Swap the contents of two registers.

Lock: Write-protect the contents of specified registers. Write-protected data can be neither overwritten nor deleted.

Unlock: Permit writing to specified registers.

Recall: Using the mouse, recall the effect.

Displaying the REGISTER menu

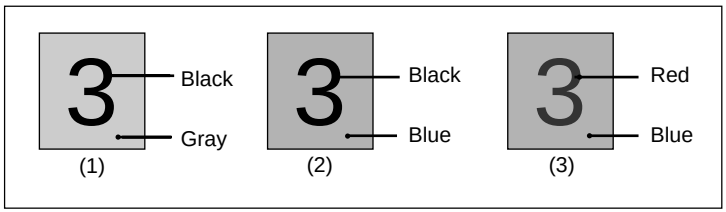
In the first set of soft key indications in the EFFECT UTILITY menu, press F2 (REGISTER), to display the REGISTER menu.

DELETE	COPY	MERGE	SWAP		LOCK	UNLOCK	CANCEL	73 REGISTER NAME

REGISTER menu soft key indications

In this screen the register numbers 1 to 99 are shown color-coded as follows.

- Empty registers: black on gray background (illustration (1) below)
- Registers containing data (not write-protected): black on blue background (illustration (2) below)
- Registers containing data (write-protected): red on blue background (illustration (3) below)



- When specifying registers for copying, deleting or other operations, instead of entering the number from the numeric keypad, you can also use the mouse to click on the register number.

• Double-clicking with the mouse on a register number recalls the effect in that register.

The following are some of the operations carried out in this menu. In all of these cases, to cancel the operation press F7 (CANCEL).

Deleting the contents of specified registers – F1 (DELETE)

Use the following procedure.

1 Press F1 (DELETE).

The legend “DELETE” appears in the numeric keypad area.

2 Enter the number of the first register whose contents are to be deleted using the numeric keypad, and press the ENTER button. Alternatively, click on the register number displayed on the screen, using the mouse.

The entered register number appears in the numeric keypad area followed by a dash. (e.g. “DELETE 12 –”)

3 Enter the number of the last register whose contents are to be deleted using the numeric keypad, and press the ENTER button. Alternatively, click on the register number displayed on the screen, using the mouse.

The entered register is appended to the message in the numeric keypad area (e.g. “DELETE 12 – 24”), and then further the legend “DELETE OK? Enter” appears.

To delete only the register whose number was entered in step 2
In step **3**, without entering a register number, simply press the ENTER button.
The legend “DELETE OK? Enter” appears in the numeric keypad area.

4 Press the ENTER button.

This deletes the contents of the registers in the specified range.

Copying the contents of specified registers – F2 (COPY)

Use the following procedure.

1 Press F2 (COPY).

The legend “COPY” appears in the numeric keypad area.

2 Enter the number of the first source register whose contents are to be copied using the numeric keypad, and press the ENTER button. Alternatively, click on the register number displayed on the screen, using the mouse.

The entered register number appears in the numeric keypad area followed by a dash. (e.g. “COPY 12 –”)

3 Enter the number of the last source register whose contents are to be copied using the numeric keypad, and press the ENTER button. Alternatively, click on the register number displayed on the screen, using the mouse.

The entered register is appended to the message in the numeric keypad area, and then further “to” is appended (e.g. “COPY 12 – 24 to”).

To copy only the register whose number was entered in step 2

In step **3**, without entering a register number, simply press the ENTER button.

The legend “to” is appended in the numeric keypad area.

4 Enter the number of the first destination register to which the contents are to be copied using the numeric keypad, and press the ENTER button. Alternatively, click on the register number displayed on the screen, using the mouse.

The contents of the range of registers specified as source are copied to the range of registers specified here.

Notes

- The previous contents of the destination registers are destroyed by the copy operation.
- If a register is write-protected, a copy operation with this register as the destination register is not carried out.

Merging the contents of a specified register on the end of the currently recalled register – F3 (MERGE)

Use the following procedure.

1 Press F3 (MERGE).

The legend “MERGE” appears in the numeric keypad area.

2 Enter the number of the register whose contents are to be appended to the contents of the currently recalled register using the numeric keypad, and press the ENTER button. Alternatively, click on the register number displayed on the screen, using the mouse.

This merges the contents of the two registers in a temporary register.
To store the merged contents of the two registers in the currently recalled register, proceed to step **3**.

3 Carry out one of the following operations.

- Press the STORE EFF button in the keyframe operation section.
- Recall another register.
- Save to disk.

In this case the maximum number of keyframes that can be written is 99.

Swapping the contents of two registers – F4 (SWAP)

Use the following procedure.

1 Press F4 (SWAP).

The legend “SWAP” appears in the numeric keypad area.

2 Enter the number of one of the registers whose contents are to be swapped using the numeric keypad, and press the ENTER button. Alternatively, click on the register number displayed on the screen, using the mouse.

The entered register number appears in the numeric keypad area followed by “and”. (e.g. “SWAP 12 and”)

Note

A swap operation is not possible if either of the registers is write-protected.

3 Enter the number of the other register whose contents are to be swapped using the numeric keypad, and press the ENTER button. Alternatively, click on the register number displayed on the screen, using the mouse.

The contents of the two registers are swapped.

Write-protecting the contents of specified registers – F5 (LOCK)

Use the following procedure.

1 Press F5 (LOCK).

The legend “LOCK” appears in the numeric keypad area.

2 Enter the number of the first register whose contents are to be write-protected using the numeric keypad, and press the ENTER button. Alternatively, click on the register number displayed on the screen, using the mouse.

The entered register number appears in the numeric keypad area followed by a dash. (e.g. “LOCK 12 –”)

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3 Enter the number of the last register whose contents are to be write-protected using the numeric keypad, and press the ENTER button. Alternatively, click on the register number displayed on the screen, using the mouse.

This write-protects the contents of the registers in the specified range.

To write-protect only the register whose number was entered in step 2
In step **3**, without entering a register number, simply press the ENTER button.

Permitting writing to specified registers – F6 (UNLOCK)

Use the following procedure.

1 Press F6 (UNLOCK).

The legend “UNLOCK” appears in the numeric keypad area.

2 Enter the number of the first register to be write-permitted using the numeric keypad, and press the ENTER button. Alternatively, click on the register number displayed on the screen, using the mouse.

The entered register number appears in the numeric keypad area followed by a dash. (e.g. “UNLOCK 12 –”)

3 Enter the number of the last register to be write-permitted using the numeric keypad, and press the ENTER button. Alternatively, click on the register number displayed on the screen, using the mouse.

This permits writing to the registers in the specified range.

To write-permit only the register whose number was entered in step 2
In step **3**, without entering a register number, simply press the ENTER button.

Changing Register Names – 73

It is possible to change the name of a register to any string of up to eight alphanumeric characters. By default, every one of the 99 registers is given the name, “SNAPSHOT”, “SETUP” or “EFFECT”.

Displaying the REGISTER NAME menu

1 Display the EFFECT UTILITY top menu.

2 Press F3 (REGISTER NAME) in the first set of soft key indications.

The REGISTER NAME menu appears.

REGISTER NAME menu soft key indications

The following is a typical operation in this menu.

Applying a new name to a register

Use the following procedure.

1 Press F2 (FUNCTION), to select “RENAME”.

The indicator to the left of the “RENAME” item lights, and a message appears as follows.

Select registers and press [Cancel]/[OK]

2 Use F3 (⇧) or F4 (⇩) to display the required register number in green, and then press F5 (SELECT). Alternatively, click on the register number displayed on the screen, using the mouse. To select all of the registers, press F6 (ALL).

A blue bar appears attached to the register number.
Repeat step **2** as necessary, if you wish to rename more than one register.

3 Press F8 (OK) or the ENTER button.

4 Use either of the following methods to enter the characters of the register name one by one (maximum eight alphanumeric characters).

- Click with the cursor on the required character on the on-screen keyboard.
- Use the control knobs to highlight the required character on the on-screen keyboard in light red, and press the SEL/FINE button.

  Left (⇄): move the light red highlighted character horizontally.

  Center (↑↓): move the light red highlighted character vertically.

  Right (←BS): delete the last input character.

The characters which you select appear in a name input window.

5 Press F8 (OK) or the ENTER button.

This renames the register.

To cancel the renaming operation
Press F7 (CANCEL).

When you specified more than one register
Once one register has been renamed, the system prompts again with the number of the next register to be renamed. Repeat steps **4** and **5** to enter the required register names.

Other register operations

Using the REGISTER NAME menu, as well as renaming registers, you can carry out all the functions (recall, delete, copy, merge, swap, write-protect (lock) and write-enable (unlock)) in the REGISTER menu *(page 8-4)*, using the same operational technique as in the DISK menu *(page 8-15)*.
If in a recall operation you press F8 (OK) without selecting a register, this recalls an empty register.

Channel-to-Channel Register Copy – 74

It is possible to copy a contiguous block of registers from one channel to another.
Only the effects which are available on the channel can be copied.

Displaying the CHANNEL COPY menu

In the first set of soft key indications in the EFFECT UTILITY menu, press F4 (CHANNEL COPY), to display the CHANNEL COPY menu.

CHANNEL COPY menu soft key indications

Making a channel-to-channel register copy

Use the following procedure.

1 Press F1 (FROM).

The legend “FROM CHn” (where n is the current reference channel number) appears in the prompt area on the screen (above the numeric keypad area). (For example: “FROM CH1”)

2 Using the buttons in the channel selection section, specify the copy source channel.

If you specify a channel number which is different from the channel number displayed in step **1**, the indication in the prompt area changes to reflect the channel number which you have just specified.

3 Enter the number of the first register in the source block of contiguous registers from the numeric keypad, and press the ENTER button. Alternatively, click the number displayed on the screen with the mouse.

The indication in the prompt area reflects the register number you have just entered. (For example: “FROM CH1 12–”)

4 Enter the number of the last register in the source block of contiguous registers from the numeric keypad, and press the ENTER button. Alternatively, click the number displayed on the screen with the mouse.

The indication in the prompt area reflects the register number you have just entered. (For example: "FROM CH1 12–33")

To copy only the register specified in step 3
In step **4**, without entering a register number, press the ENTER button.

5 Press F2 (TO).

In the line below the "FROM" indication of the prompt area, the legend "TO CHn" (where n is the current reference channel number) appears. (For example: "TO CH1")

6 Using the buttons in the channel selection section, specify the copy destination channel.

The "TO" indication in the prompt area changes to reflect the channel number which you have just specified. (For example: "TO CH2")

7 Enter the number of the first destination register from the numeric keypad, and press the ENTER button. Alternatively, click the number displayed on the screen with the mouse.

The "TO" indication in the prompt area reflects the register number you have just entered. (For example: "TO CH2 34")

8 Press F5 (EXEC).

The specified block of contiguous source registers is copied to the block of contiguous destination registers beginning with the register you specified in step **7**.
During the copy operation, the prompt area shows the progress and the number of the effect being copied.

To cancel the copy operation
Press F8 (CANCEL).

Disk Utilities

This section describes utility operations relating to floppy disks.

Overview

The following operations can be carried out with a floppy disk.
- Saving the keyframe effect data, snapshot data or setup data in one of the processor registers (numbers 1 to 99) to a floppy disk.
- Loading a keyframe effect, snapshot or setup data from a floppy disk into one of the processor registers (numbers 1 to 99).
- Formatting a floppy disk for use.
- Copying files on a disk.
- Renaming files on a disk.
- Deleting files from a disk.
- Write-protecting files on a disk (lock function).
- Write-enabling files on a disk (unlock function).
- Writing a label on a disk.

The drive uses 3.5-inch 2HD disks.

Floppy Disk Operations – 77

You can use a floppy disk to store setup data, effect data and snapshot data.
These different types of data are held in three directories: SETUP, EFFECT and SNAPSHOT.

Displaying the DISK menu

In the first set of soft key indications in the EFFECT UTILITY menu, press F5 (DISK) to display the DISK menu.

DISK menu soft key indications

The following are some of the operations carried out in this menu.

Selecting the directory – CHANGE DIRECTORY

Press F1 (CHANGE DIRECTORY) to select the directory.
Pressing F1 cycles through in the following sequence: EFF → SNAP → SETUP.

Saving register contents – SAVE

Use the following procedure to save the contents of a register to the floppy disk.

1 Insert the floppy disk on which you wish to save the file in the floppy disk drive.

Note

Before using a new floppy disk to hold data, it is necessary to format it.

For details see the section "Formatting a disk" (page 8-18).

2 Press F2 (FUNCTION) and select "SAVE".

The indicator to the left of the "SAVE" item lights, and a message appears as follows. (The soft key indication for F8 changes to "OK".)

Select registers and press [Cancel]/[OK]

(Continued)

3 Use F3 (⇧) or F4 (⇩) to display the required register number in green, and then press F5 (SELECT). Alternatively, click on the register number displayed on the screen, using the mouse. To specify all registers, press F6 (ALL).

A blue bar appears attached to the register number. Repeat step **3** as necessary, if you wish to save more than one file.

4 Press F8 (OK).

5 Use the numeric keypad to enter the file number for the first register in the range, and then press the ENTER button. To save with the file numbers the same as the register numbers, press the ENTER button without entering a number.

Register numbers are in the range 1 to 99, but file numbers are in the range 1 to 999.

If the file with the specified file number already exists, the following message appears. Select one response and click on it (or press the button indicated in parenthesis).

Do you want to overwrite?

OK (TRIM): Overwrite the file, and continue processing.
ALL OK (ENTER): Unconditionally overwrite all of the specified files.
SKIP (⇩): Do not overwrite this file, but continue processing.
CANCEL (EXIT): Cancel the saving operation.

This saves the register or registers.

You can abort the save by pressing F7 (CANCEL) before pressing ENTER button.

Loading a file – LOAD

Use the following procedure to load a register in the processor from a floppy disk.

1 Insert the floppy disk containing the file to be loaded in the floppy disk drive.

2 Press F8 (READ DISK).

Note

If you change floppy disks, then until you press F8 (READ DISK) the file display is not updated.

3 Press F2 (FUNCTION) and select “LOAD”.

The indicator to the left of the “LOAD” item lights, and a message appears as follows.

Select files and press [Cancel]/[OK]

4 Press F3 (⇧) or F4 (⇩) to display the required file number in green, and then press F5 (SELECT). Alternatively, click on the register number displayed on the screen, using the mouse. To specify all reghisters, press F6 (ALL).

A blue bar appears attached to the file number, and the soft key indication for F8 changes to “OK”.
Repeat step **4** as necessary, if you wish to load more than one file.

5 Press F8 (OK).

6 Use the numeric keypad to enter the register number for the first file in the range, and then press the ENTER button.
To load with the register numbers the same as the file numbers, press the ENTER button without entering a number.

This loads the file or files.

You can abort the load by pressing F7 (CANCEL) before pressing ENTER button.

Formatting a disk – FORMAT

Use the following procedure to format a floppy disk.

Note

Carrying out this procedure destroys any existing data on the floppy disk. Check that the data on the floppy disk in the drive is not required before continuing.

1 Press F2 (FUNCTION) and select “FORMAT”.

A message appears as follows, and the soft key indication for F8 changes to “OK”.

Insert disk to format → [Cancel]/[OK]

2 Insert the floppy disk to be formatted in the floppy disk drive.

3 Press F8 (OK).

Formatting begins. If it completes successfully, a message “Finished” appears.

Copying a file – COPY

Use the following procedure to copy a file on floppy disk.

Notes

- When you copy a file, the previous contents of the destination file are overwritten, and thus lost.
- If the destination file is write-protected (locked), the copy to that file is not executed.

1 Insert the floppy disk containing the file you wish to copy in the floppy disk drive.

2 Press F2 (FUNCTION) and select “COPY”.

The indicator to the left of the “COPY” item lights, and a message appears as follows.

Select files and press [Cancel] / [OK]

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3 Press F3 (⇧) or F4 (⇩) to display the required source file number in green, and then press F5 (SELECT). Alternatively, click on the register number displayed on the screen, using the mouse.
To select all of the files, press F6 (ALL).

A blue bar appears attached to the specified register number, and the soft key indication for F8 changes to "OK".
Repeat step **3** as necessary, if you wish to copy more than one file.

4 Press F8 (OK) or the ENTER button.

A message appears as follows.
(In this example, 12 has been specified as the source file number.)

COPY 12 to: Input number

5 Enter the destination file number using the numeric keypad, and press the ENTER button.

This executes the copy operation.

To cancel the copy operation
Press F7 (CANCEL).

When you specified more than one source file
Once one file has been copied, the system prompts again with the next source file number. Enter the corresponding destination file number using the numeric keypad, and press the ENTER button.
This process is repeated until all of the source files have been copied.

Renaming a file – RENAME

By default, when you save registers to a disk, every one of the files is given the name “EFFECT”, “SNAPSHOT”, or “SETUP”.
Use the following procedure to rename a file on a floppy disk.

1 Insert the floppy disk containing the file to be renamed in the floppy disk drive.

2 Press F2 (FUNCTION) and select “RENAME”.

The indicator to the left of the “RENAME” item lights, and a message appears as follows.

Select files and press [Cancel]/[OK]

3 Press F3 (⇧) or F4 (⇩) to display the required file number in green, and then press F5 (SELECT). Alternatively, click on the register number displayed on the screen, using the mouse. To select all of the files, press F6 (ALL).

A blue bar appears attached to the file number, and the soft key indication for F8 changes to “OK”.
Repeat step **3** as necessary, if you wish to rename more than one file.

4 Press F8 (OK) or the ENTER button.

A message appears as follows.
(In this example, 12 has been specified as the number of the file to be renamed.)

12 EFFECT:Input new name

5 Use either of the following methods to enter the characters of the file name one by one (maximum eight alphanumeric characters).

- Click with the cursor on the required character on the on-screen keyboard.
- Use the control knobs to highlight the required character on the on-screen keyboard in light red, and press the SEL/FINE button.

  Left knob (⇄): move the light red highlighted character horizontally.

  Center knob (↑↓): move the light red highlighted character vertically.

  Right knob (BS): delete the last input character.

The characters which you select appear in a name input window.

6 Press F8 (OK) or the ENTER button.

This renames the file.

To cancel the renaming operation
Press F7 (CANCEL).

When you specified more than one file
Once one file has been renamed, the system prompts again with the number of the next file to be renamed. Repeat steps **5** and **6** to enter the required file name.
This process is repeated until all of the specified files have been renamed.

Deleting a file – DELETE

Use the following procedure to delete a file from a floppy disk.

1 Insert the floppy disk containing the file to be deleted in the floppy disk drive.

2 Press F2 (FUNCTION) and select “DELETE”.

The indicator to the left of the “DELETE” item lights, and a message appears as follows.

Select files and press [Cancel]/[OK]

3 Now carry out steps **4** and **5** in the section “Loading a file – LOAD” *(page 8-17)* .

Locking a file – LOCK

Use the following procedure to write-protect (lock) a file on a floppy disk.

1 Insert the floppy disk containing the file to be write-protected in the floppy disk drive.

2 Press F2 (FUNCTION) and select “LOCK”.

The indicator to the left of the “LOCK” item lights, and a message appears as follows.

Select files and press [Cancel]/[OK]

3 Now carry out steps **4** and **5** in the section “Loading a file – LOAD” *(page 8-17)* .

When a file is write-protected, it is not possible to write to it, nor to copy to it, nor to delete it.

Unlocking a file – UNLOCK

Use the following procedure to write-enable (unlock) a file on a floppy disk.

1 Insert the floppy disk containing the file to be write-enabled in the floppy disk drive.

2 Press F2 (FUNCTION) and select “UNLOCK”.

The indicator to the left of the “UNLOCK” item lights, and a message appears as follows.

Select files and press [Cancel]/[OK]

3 Now carry out steps **4** and **5** in the section “Loading a file – LOAD” *(page 8-17)* .

Writing a label on a disk – LABEL

Use the following procedure to write a label on a disk.

1 Insert the floppy disk on which the label is to be written in the floppy disk drive.

2 Press F2 (FUNCTION) and select “LABEL”.

The indicator to the left of the “LABEL” item lights, and a message appears as follows. (The soft key indication for F8 changes to “OK.”)

Input LABEL name and press [Cancel]/[OK]

3 Use either of the following methods to enter the characters of the label one by one (maximum eleven alphanumeric characters).

- Click with the cursor on the required character on the on-screen keyboard.
- Use the control knobs to highlight the required character on the on-screen keyboard in light red, and press the SEL/FINE button.

  Left knob (⇄): move the light red highlighted character horizontally.

  Center knob (↑↓): move the light red highlighted character vertically.

  Right knob (BS): delete the last input character.

The characters which you select appear in a name input window.

4 Press F8 (OK) or the ENTER button.

This writes the label on the disk.

To cancel the labeling operation
Press F7 (CANCEL).

Color Mattes – 78

You can copy the colors produced by the color matte generators for BKGD, BORDER, DROP SHADOW, and other effects.

Displaying the COLOR MATTE menu

In the first set of soft key indications in the EFFECT UTILITY menu, press F6 (COLOR MATTE) to display the COLOR MATTE menu.

COLOR MATTE menu soft key indications

The following are some of the operations carried out in this menu.

Operation in the COLOR MATTE menu

Copying a color with the function keys – F1 (⇧) to F6 (PASTE)

Use the following procedure.

1 Use F1 (⇧) to F4 (⇨) to select the source color matte for the copy, displaying it in green.

2 Press F5 (COPY).

3 Use F1 (⇧) to F4 (⇨) to select the destination color matte name.

4 Press F6 (PASTE).

This carries out the copy.

Copying a color with the trackball

Use the following procedure.

1 In the function delegation section of the control panel, press the CURSR button, turning it on.

This delegates the trackball to cursor movement.

2 Align the cursor (rectangle) with the source color matte display for the copy.

3 Hold down the SEL/FINE button to change the cursor from an arrow to a square, and use the trackball to move the cursor to the destination color matte name.

4 Release the SEL/FINE button.

This carries out the copy, and the cursor returns to an arrow shape.

Copying a color with the mouse

Use the following procedure.

1 Align the cursor with the color matte to copy.

2 Hold down the left mouse button, and drag the cursor to the destination color matte name, then release the button.

Setting a color matte

Use the following procedure.

1 Use F1 (⇧) to F4 (⇨) to select the color matte with the cursor.

The source color matte name changes to green, and its parameters appear in the “Color Matte” item.

2 Adjust the color parameters.
- Left knob (“Lum”): luminance (0 to 100%)
- Center knob (“Sat”): saturation (0 to 100%)
- Right knob (“Hue”): hue (0 to 359.99)

Snapshots

A snapshot means making a copy of all the current settings governing the DME processing, and saving it in memory for later recall.
This section describes snapshot operations for the internal DME.

Overview

Snapshots and registers

The registers for snapshots have the same configuration as the registers for keyframe effects. In other words, there are 99 registers for each of the three channels (channels 1 and 2 and the global channel).

Note

A battery backup is provided for the contents of the registers, which are therefore preserved even when the unit is powered off. However, after a certain time interval has elapsed (about one week), the battery will be exhausted and the data lost. You are always recommended to save required snapshots to floppy disk.

For details of saving snapshots to floppy disk, see the section "Floppy Disk Operations – 77" (page 8-15).

Keyframes and snapshots

Saving and recalling snapshots uses the same working keyframe buffer as keyframes. As a result, you can use a recalled snapshot for keyframe editing.

Note

It is not possible to recall a snapshot during execution of a keyframe effect. It is also not possible to execute a keyframe effect while recalling a snapshot.

Snapshot Operations – 75

Displaying the SNAPSHOT menu

In the second set of soft key indications in the EFFECT UTILITY menu, press F1 (SNAPSHOT) to display the SNAPSHOT menu.

SNAPSHOT menu soft key indications

The following operations are carried out in this menu.

Operations in the SNAPSHOT menu

Recalling a snapshot – F1 (RECALL)

Use the following procedure.

1 Press F1 (RECALL).

2 Use the numeric keypad to enter the register number from which you want to recall the snapshot. Alternatively click the cursor on the required number on the screen.

This recalls the snapshot of the specified number.

Saving a snapshot – F2 (LEARN)

Use the following procedure.

1 Set the buttons and menus on the control panel to the state you wish to save in the snapshot.

2 Press F2 (LEARN).

3 Use the numeric keypad to enter the register number to which you want to save the snapshot. Alternatively click the cursor on the required number on the screen.
To select the next empty register numbered above the currently recalled register, enter a period from the numeric keypad.

This saves the state set up in step **1** as the snapshot of the specified number.

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Deleting snapshots – F3 (DELETE)

Use the following procedure.

1. Press F3 (DELETE).
2. Use the numeric keypad to enter the first register number which you want to delete, and press the ENTER button. Alternatively click the cursor on the required number on the screen.
3. Use the numeric keypad to enter the last register number which you want to delete, and press the ENTER button. Alternatively click the cursor on the required number on the screen.
   To delete a single snapshot, press the ENTER button without entering a number.

   This deletes all snapshots in the specified range.

Copying snapshots – F4 (COPY)

Use the following procedure.

Notes

- The following operation destroys the existing contents of the destination registers.
- If a destination register is locked, it is not possible to copy to it.

1. Press F4 (COPY).
2. Use the numeric keypad to enter the first register number which you want to copy, and press the ENTER button. Alternatively click the cursor on the required number on the screen.
3. Use the numeric keypad to enter the last register number which you want to copy, and press the ENTER button. Alternatively click the cursor on the required number on the screen. To copy a single snapshot, press the ENTER button without entering a number.

(Continued)

4 Use the numeric keypad to enter the number of the first destination register, and press the ENTER button. Alternatively click the cursor on the required number on the screen.

This copies the block of snapshots in the specified range.

Locking snapshots to prevent overwriting or deletion – F5 (LOCK)

Use the following procedure.

1 Press F5 (LOCK).

2 Use the numeric keypad to enter the first register number which you want to lock, and press the ENTER button. Alternatively click the cursor on the required number on the screen.

3 Use the numeric keypad to enter the last register number which you want to lock, and press the ENTER button. Alternatively click the cursor on the required number on the screen. To lock a single snapshot, press the ENTER button without entering a number.

This locks all snapshots in the specified range.

Releasing locked snapshots – F6 (UNLOCK)

Use the following procedure.

1 Press F6 (UNLOCK).

2 Use the numeric keypad to enter the first register number which you want to unlock, and press the ENTER button. Alternatively click the cursor on the required number on the screen.

3 Use the numeric keypad to enter the last register number which you want to unlock, and press the ENTER button. Alternatively click the cursor on the required number on the screen. To unlock a single snapshot, press the ENTER button without entering a number.

This unlocks all snapshots in the specified range.

Returning to the state before a snapshot was recalled – F7 (LAST X)

When you recall a snapshot, the existing state of the working buffer is saved temporarily in a register known as “LAST X”. To recall this, press F7 (LAST X). Pressing F7 repeatedly interchanges the contents of the working buffer and the “LAST X” register.

Setting the snapshot attributes – F8 (SNAPSHOT ATTRI)

Use the following procedure.

1 Press F8 (SNAPSHOT ATTRI).

The SNAPSHOT ATTRIBUTE menu appears.

2 Press F1 to F3 as required.

F1 (XPOINT HOLD): when this is set to “ON”, recalling a snapshot does not change input signals.

F2 (EFFECT DISSOLVE): when this is set to “ON”, the change to the snapshot image is made smoothly by a dissolve.

F3 (DURATION): when F2 is set to “ON”, this sets the duration of the dissolve. Press F3, then enter the value using the numeric keypad.

Changing Snapshot Names – 76

For each of snapshot registers 1 to 99 the name “SNAPSHOT” is assigned by default.
You can assign any name of up to eight alphanumeric characters to a specified register.

- When a snapshot is copied, the destination register takes the same name as the source register.
- Saving in a snapshot register leaves the name unchanged.
- Deleting the contents of a register leaving it empty returns the name to the default “SNAPSHOT”.

In the second set of soft key indications in the EFFECT UTILITY menu, press F2 (SNAPSHOT NAME) to display the SNAPSHOT NAME menu.

SNAPSHOT NAME menu soft key indications

The operations in this menu are the same as the corresponding operations in the REGISTER NAME menu for naming keyframe effect registers.

For details, see the section “Changing Register Names – 73” (page 8-10).

Channel-to-Channel Snapshot Copy – 79

Copying snapshots from one channel to another

In the second set of soft key indications in the EFFECT UTILITY menu, press F3 (SNAPSHOT CH COPY) to display the CHANNEL COPY (SNAPSHOT) menu.

FROM	TO				EXEC			CANCEL

CHANNEL COPY menu soft key indications

The operations in this menu are the same as those in the CHANNEL COPY menu for keyframe registers.
Only the snapshots which are available on the channel can be copied.

For details of operations, see the section "Channel-to-Channel Register Copy – 74" (page 8-12).

Memory Recall

"Memory recall" refers to a function whereby registers are assigned to rows of buttons shown on the menu screen (this display is referred to as the "memory recall panel"), and it is possible to recall effects by a button operation.

Memory Recall Selection – 500

Top Menu Display

The memory recall function is selected from the MEMORY RECALL menu.

MEMORY RECALL menu soft key indications

Selection operation

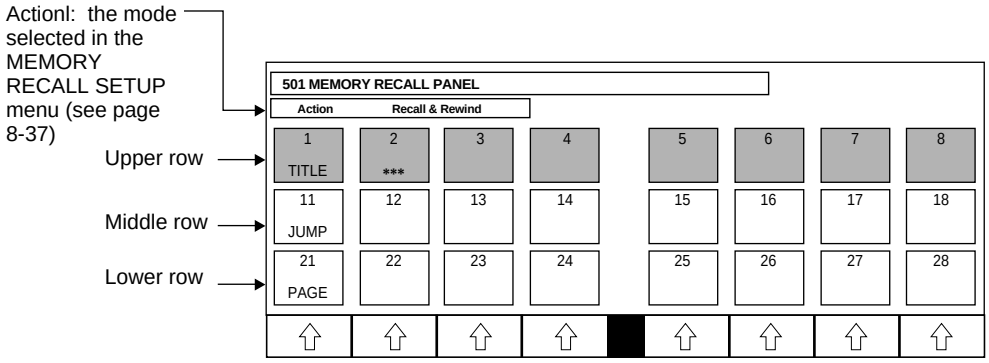
Press the required function key as shown in the following table to select the function required.

Function key	Function	See page
F1 (RECALL PANEL)	Use the memory recall panel to recall an effect.	8-35
F2 (RECALL SETUP)	Carry out button assignments to the memory recall panel and select the mode in which an effect is recalled.	8-37

Memory Recall Panel Operations – 501

MEMORY RECALL PANEL menu display

In the MEMORY RECALL menu, press F1 (RECALL PANEL) to display the MEMORY RECALL PANEL menu.

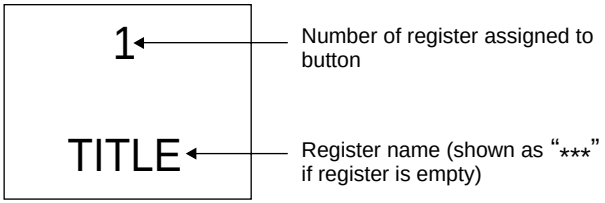


MEMORY RECALL PANEL menu

Accessing this menu automatically assigns the trackball to cursor movement.

Memory recall buttons

The display on the buttons in the memory recall panel is as follows.



The following operation is carried out using the memory recall panel.

Recalling registers

Click on a button on the menu screen, or carry out the following procedure.

1 Press the ⇧ and ⇩ buttons on the control panel to display the required row of memory recall buttons in blue.

2 Press one of F1 to F8 corresponding to the required button in the selected row.

The register is recalled.

Depending on the settings in the MEMORY RECALL SETUP menu, as the register is recalled the effect may be rewound, or automatically run.

For details see the next page.

Memory Recall Setup Operations – 502

Operations such as setting the mode of memory recall, and assigning registers to memory recall buttons are carried out.

Displaying the MEMORY RECALL SETUP menu

In the MEMORY RECALL menu, press F2 (RECALL SETUP) to display the MEMORY RECALL SETUP menu.

MEMORY RECALL SETUP menu soft key indications

Operations in the MEMORY RECALL SETUP menu

Selecting the memory recall mode – F1 (RECALL MODE)

To rewind the effect to the initial keyframe when the register is recalled, press F1 (RECALL MODE) and display the setting as “Recall & Rewind”.
To recall a register without rewinding the effect, press F1 (RECALL MODE) and display the setting as “Recall”.

Enabling and disabling automatic run mode – F2 (AUTO RUN)

To run the effect automatically when the register is recalled, press F2 (AUTO RUN), setting it to “ON”.

Assigning a register number to a memory recall button – F4 (REGISTER ASSIGN) to F7 (LOWER ROW)

Use the following procedure.

1 Press F4 (REGISTER ASSIGN) to select the default assignment or a user assignment.
- "**Default**": this uses the following default assignments.
  Upper row: 1 to 8
  Middle row: 11 to 18
  Lower row: 21 to 28
- "**User Defined**": this uses a user-defined assignment of register numbers.

The register numbers currently assigned in each row appear in the menu screen.
To change the user-defined assignments only, proceed to the following step **2** and subsequent steps.

2 Press one of F5 (UPPER ROW) to F7 (LOWER ROW) to select the row of buttons for which you wish to make an assignment *(see page 8-35)*.
- F5 (UPPER ROW): Upper row
- F6 (CENTER ROW): Middle row
- F7 (LOWER ROW): Lower row

3 Enter the register number for the leftmost button in the selected row, using the numeric keypad. Successive register numbers are then automatically assigned to the remaining seven buttons in the row.

4 Repeat steps **2** and **3** as required, to assign register numbers to the other two rows.

Memory recall panel operations – F8 (MEMORY RECALL)

To display the memory recall panel, press F8 (MEMORY RECALL).
The memory recall panel appears.

For details, see the section "Memory Recall Panel Operations – 501" (page 8-35).

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Chapter 9
Status Displays

Selecting Status Display – 600 9-2
Three-Dimensional Transformation Status Display – 601 9-3
Keyframe Three-Dimensional Transformation Parameter Display – 602 9-4
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Keyframe Effect Timeline Status Display – 610 9-8

Selecting Status Display – 600

The status displays include indications of the three-dimensional transformation parameters, and a keyframe effect timeline display. This section describes how to access these displays from the top menu.

Top Menu Display

The status displays are selected from the STATUS menu.

STATUS menu soft key indications

Selection operation

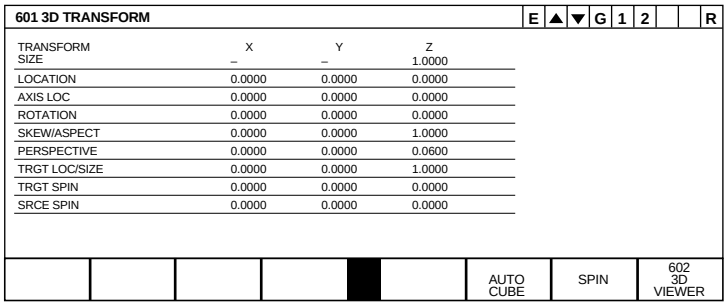
Press the required function key as shown in the following table to select the status display.

Function key	Function	See page
F1 (TRANSFORM)	Display current state of three-dimensional transformation parameters.	9-3
F2 (3D VIEWER)	Display three-dimensional transformation parameters for keyframes.	9-4
F3 (MOUSE FOR 3D)	Use the mouse to carry out three-dimensional transformations.	9-6
F5 (TIME LINE)	Show keyframe effect timeline display.	9-8

Three-Dimensional Transformation Status Display – 601

This displays the current state of the three-dimensional transformation parameters.

In the STATUS menu, press F1 (TRANSFORM) to show the 3D TRANSFORM display.



3D TRANSFORM display

The 3D TRANSFORM display shows the current state of the three-dimensional transformation parameters.

The following procedure is also possible.

Selecting image spin

When rotating a video image between keyframes, the normal rotation function only allows a maximum of one turn between keyframes, and as a result the image may not rotate in the required manner. Using the spin function, on the other hand, you can create effects in which the image rotates continuously about the specified axis.

1 Press F7 (SPIN), turning it on.

The buttons (LOC SIZE, AXIS LOC, etc.) in the transform mode selection section of the control panel all go off.

2 Press the TRGT button or SRCE button, turning it on, to select the target or source coordinate space.

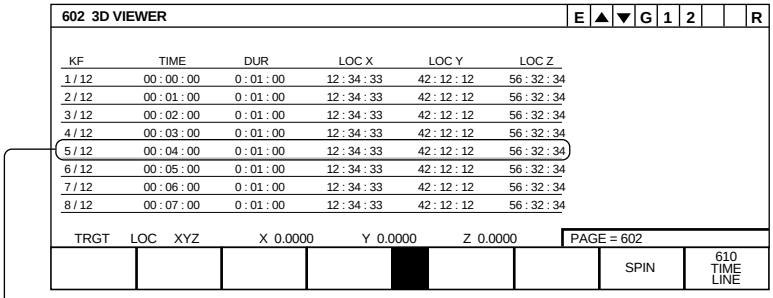
3 To cause a spin about the x- or y-axis, turn the trackball. To cause a spin about the z-axis, turn the Z-ring.

The image spins as you turn the trackball or Z-ring.

Keyframe Three-Dimensional Transformation Parameter Display – 602

This displays the three-dimensional transformation parameters for each keyframe.

In the STATUS menu, press F2 (3D VIEWER) to display the 3D VIEWER menu.



The line showing the settings of the current keyframe lights green.

3D VIEWER menu

The 3D TRANSFORM menu displays the three-dimensional transformation parameters for each keyframe of the currently recalled effect.

Changing the set of displayed three-dimensional parameters

Carry out the following procedure in the transformation operation section of the control panel.

1 Press the SRCE button or TRGT button in the function allocation section.

2 Refer to the following table, and press the appropriate button (ASP/SKEW/PERS, LOC SIZE, LOC XYZ, AXIS LOC, or ROT button in the transformation mode selection section) for the required parameters.
To display the spin parameters, press F7 (SPIN).

Button in the function allocation section	Button in the transformation mode selection section or F7	Displayed parameters
SRCE	ASP/SKEW/PERS	SKEW X, SKEW Y, ASP
	LOC SIZE	LOC X, LOC Y, SIZE
	LOC XYZ	LOC X, LOC Y, LOC Z
	AXIS LOC	AXIS X, AXIS Y, AXIS Z
	ROT	ROT X, ROT Y, ROT Z
	SPIN (F7) or SHIFT + ROT button	SOURCE SPIN X, SOURCE SPIN Y, SOURCE SPIN Z
TRGT	ASP/SKEW/PERS	PERS X, PERS Y, PERS Z
	LOC SIZE	LOC X, LOC Y, SIZE
	LOC XYZ	LOC X, LOC Y, LOC Z
	AXIS LOC	AXIS X, AXIS Y, AXIS Z
	ROT	ROT X, ROT Y, ROT Z
	SPIN (F7) or SHIFT + ROT button	TARGET SPIN X, TARGET SPIN Y, TARGET SPIN Z

Changing the three-dimensional parameter values for the current keyframe

In the 3D VIEWER menu, the line for the current keyframe is shown in green. Use the following procedure to change the parameter settings on this line.

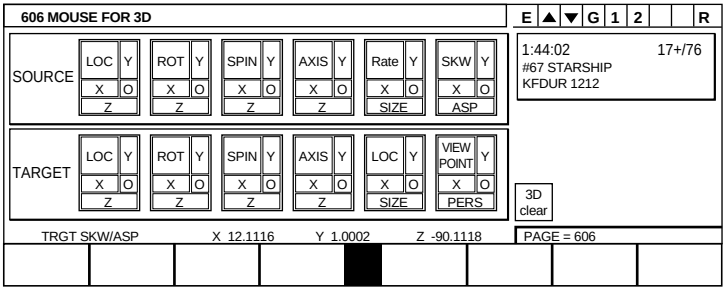
1 Click with the mouse on the required item, or delegate the trackball to cursor movement then press the SEL/FINE button.

2 Enter the parameter value from the numeric keypad, and press the ENTER button.

Mouse-Driven Three-Dimensional Transformation Operations – 606

You can use the mouse to carry out three-dimensional transformations.

In the STATUS menu, press F3 (MOUSE FOR 3D) to display the MOUSE FOR 3D menu.



MOUSE FOR 3D menu

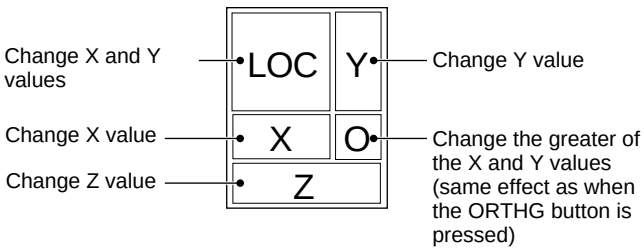
In the MOUSE FOR 3D menu, carry out the following operation.

Carrying out a three-dimensional transformation with the mouse

Use the following procedure.

1 Move the cursor to the required zone of the required button appearing on the screen.

Each button is in the form of a panel comprising five zones which are linked to the buttons in the transformation operation section.



2 Press the left mouse button.

The selected zone changes color, and the cursor disappears.

3 Move the mouse to carry out the transformation.

4 Once the required effect is achieved, press the right mouse button.

The mouse operation returns to normal, and the cursor reappears.

Returning a transformation setting to its default value

With no zone selected, align the cursor with the required item, and double-click.

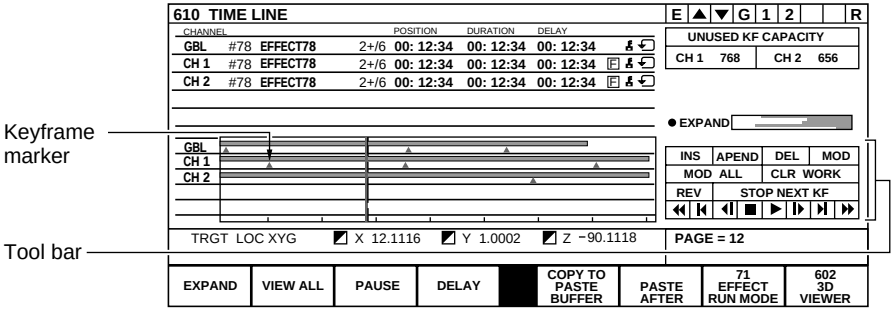
Setting a transform parameter to a detent value

With the appropriate zone selected, double-click the mouse button to release the selection, and change to the detent value *(see page 3-7)*.

Keyframe Effect Timeline Status Display – 610

This shows the keyframe effect timeline display.

In the STATUS menu, press F5 (TIME LINE) to display the TIME LINE menu.



TIME LINE menu

This menu provides a timeline display for each channel of the currently recalled keyframe effect, giving an at-a-glance impression of the length of the effect and the current position.

Effect indications

At the right edge of the effect indication for each channel, the following symbols appear.

F, B: These indicate that the front video or back video respectively is visible.

: This appears when the register is write-protected.

: This appears when the effect is set to loop.

Remaining keyframe capacity

The items under the heading “UNUSED KF CAPACITY” show the number of keyframes which can be created for each channel.

Tool bar operations

Clicking on a button in the tool bar executes the corresponding operation as follows.

INS: Insert a keyframe. If the edit point is on a keyframe, insert after that keyframe. (Same as the BEFR/INSRT button)

APEND: Insert a keyframe. If the edit point is on a keyframe, insert before that keyframe. (Same as SHIFT + BEFR/INSRT)

DEL: Delete a keyframe. (Same as the DEL button)

MOD: Modify a keyframe. (Same as the MOD button)

MOD ALL: Modify multiple keyframes. (Same as the MOD ALL button)

CLR WORK: Clear the working keyframe buffer. (Same as the CLR WORK BUFF button)

REV: Reverse the direction of the effect. (Same as the REVS button)

STOP NEXT KF: Run the effect up to the next keyframe.

◀◀ : Rewind. (Same as the REW button)

|◀ : Move back one keyframe. (Same as the PREV KF button)

◀| : Move back one frame.

■ : Stop the effect.

► : Run the effect. (Same as the RUN button)

|► : Move forward one frame.

►| : Move forward one keyframe. (Same as the NEXT KF button)

►► : Move to the last keyframe.

Operations in the TIMELINE menu

Changing the section of the timeline displayed – F1 (EXPAND)

Use the following procedure to change the start point of the section of the timeline displayed or the scale.

1 Press F1 (EXPAND), turning it on.

2 To change the start point, adjust the left knob (“Start”).

3 To change the length of the section displayed (i.e. the scale), adjust the right knob (“Width”).

Viewing the whole effect on the timeline – F2 (VIEW ALL)

With F1 (EXPAND) on, press F2 (VIEW ALL).
This adjusts the time scale so that the whole effect appears on the timeline.

Setting a pause position – F3 (PAUSE)

This determines the position at which the effect stops after execution.

Note

The pause setting is only effective when you execute the effect using the RUN button on the control panel or by a GPI trigger. When executing an effect under the control of a HDS-7150 switcher system using the keyframe link function, or from an editor, the pause setting is ignored.

Use the following procedure.

1. Select the channel or channels to which the setting is to apply.
2. Stop the effect at the desired pause position.
3. Press F3 (PAUSE).

   This sets the pause.

Clearing the pause setting

Stop the effect at the currently set pause position, and press F3 (PAUSE).
This clears the pause setting.

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Setting a delay – F4 (DELAY)

This sets a delay from the time at which you carry out the effect execution operation to the time at which the execution actually starts.
Use the following procedure.

1. Select the channel or channels to which the setting is to apply.
2. Press F4 (DELAY).
3. Enter the delay value (seconds.frames) from the numeric keypad, and press the ENTER button.

   This sets the entered value as the delay.

Copying a keyframe – F5 (COPY TO PASTE BUFFER) and F6 (PASTE AFTER)

These copy a keyframe from one position to another.
Use the following procedure.

1. Select the channel to which the operation is to apply.
2. Stop the effect on the source keyframe to be copied.
3. Press F5 (COPY TO PASTE BUFFER).
4. Stop the effect at the position to which you wish to copy the keyframe.
5. Press F6 (PASTE AFTER).

   This copies the keyframe.

Copying a number of keyframes – F6 (PASTE AFTER)

This copies a number of keyframes from one position to another. Use the following procedure.

1 Select the channel or channels to which the operation is to apply.

2 Carry out steps **2** to **6** of the procedure "Amending a number of keyframes together" *(page 7-12)* to specify the set of keyframes to be copied.

3 Stop the effect at the position to which you wish to copy the first of the keyframes.

4 Press F6 (PASTE AFTER).

This copies the keyframes.

Chapter 10
Setup Operations

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Selecting Setup Items – 700

The setup items are settings for controlling the operation of the internal DME.
Normally these settings will be made when the system is installed, but it may also be necessary to make changes from time to time. This section describes how to access these menus from the top menu.

Top Menu Display

To use the menus for setup settings, select the SETUP & DIAG menu.

The SETUP & DIAG menu contains three sets of soft key indications. Press F8 (MORE) to cycle through the sets.

701 CH ASSIGN	702 OPERA-TION	703 TRACK BALL	704 GPI		705 FREEZE BUTTON	706 SCREEN SAVER	707 OPERA-TION 2	MORE

SETUP & DIAG menu soft key indications (set 1)

		713 AUTO KEY SELECT				716 PROCESS CTRL 1	717 PROCESS CTRL 2	MORE

SETUP & DIAG menu soft key indications (set 2)

721 SYSTEM	722 SYSTEM CONFIG	723 VERSION	724 INSTALL		725 DME LINK	726 SPARE PORT		MORE

SETUP & DIAG menu soft key indications (set 3)

Selection operation

In the SETUP & DIAG menu, press the required function key as shown in the following table to select the menu.

Selecting from the first set of soft key indications

Function key	Function	See page
F1 (CH ASSIGN)	Assign channel numbers.	10-5
F2 (OPERATION)	Settings related to operation.	10-7
F3 (TRACK BALL)	Adjust trackball and Z-ring.	10-10
F4 (GPI)	Set up GPI.	10-13
F5 (FREEZE BUTTON)	Select effect of FREZE button.	10-16
F6 (SCREEN SAVER)	Toggle the screen saver function on and off.	10-18
F7 (OPERATION 2)	Control settings for a beeper sound and fast access to frequently used menus.	10-19
F8 (MORE)	Switch to the second set of soft key indications, as shown below.	—

Selecting from the second set of soft key indications

Function key	Function	See page
F3 (AUTO KEY SELECT)	Assign particular key signals automatically to particular video signals.	10-21
F6 (PROCESS CTRL 1)	Select signal processing.	10-23
F7 (PROCESS CTRL 2)	Select interpolation processing, and other settings.	10-25
F8 (MORE)	Switch to the third set of soft key indications, as shown on the next page.	—

Selecting from the third set of soft key indications

Function key	Function	See page
F1 (SYSTEM)	Set system clock and operating mode.	10-26
F2 (SYSTEM CONFIG)	Display option boards installed.	10-28
F3 (VERSION)	Display the software version for the processor, the control panel, and the currently installed option boards.	10-29
F4 (INSTALL)	Install system software.	10-30
F5 (DME LINK)	Settings for the DME LINK function.	10-34
F6 (SPARE PORT)	Select the use for the RS-232C connector on the control panel.	10-35
F8 (MORE)	Switch to the first set of soft key indications, as shown on the previous page.	—

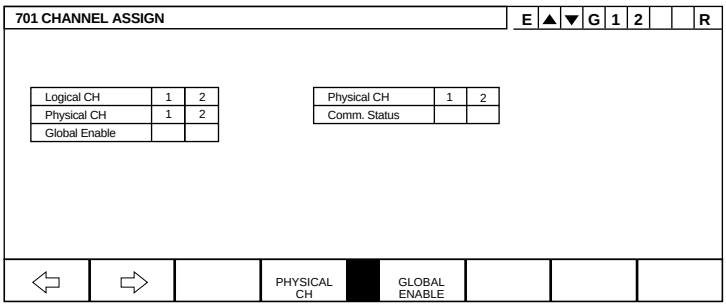
Global Channel Settings – 701

The channel assignments on the internal DME are fixed as follows:

Logical Channel	1	2
Physical Channel	1	2

You can select whether channel 1 is included in the global channel or not.

With the first set of soft key indications shown in the SETUP & DIAG menu, press F1 (CH ASSIGN) to display the CHANNEL ASSIGN menu.
An asterisk in boxes in the menu to the right of the legend “Comm. Status” show the existence of a processor connected to the control panel.



CHANNEL ASSIGN menu

The following are some of the operations carried out in this menu.

Selecting whether a channel is included in the global channel – F5 (GLOBAL ENABLE)

Use the following procedure to select whether DME channel 1 is included in the global channel or not.
Note that DME channel 2 is not included in the global channel.

1 Use F1 (⇦) or F2 (⇨) to select the logical channel 1.

2 Press F5 (GLOBAL ENABLE).

Pressing F5 toggles the asterisk indication on the “Global Enable” line on and off.
When an asterisk is displayed the channel is included in the global channel; when no asterisk is displayed it is not.

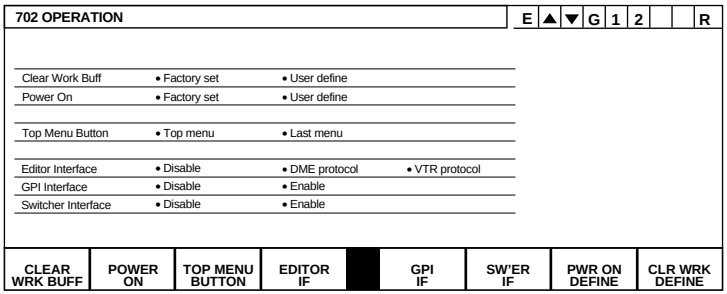
Note

If you carry out image processing with this menu displayed, the display speed may fall, and smooth movement may not be obtained. After completing the necessary settings, switch to a different menu.

Settings Related to Operation – 702

This menu controls various settings related to operation from the control panel.

With the first set of soft key indications shown in the SETUP & DIAG menu, press F2 (OPERATION) to display the OPERATION menu.


702 OPERATION
E ▲ ▼ G 1 2 R
Clear Work Buff • Factory set • User define
Power On • Factory set • User define
Top Menu Button • Top menu • Last menu
Editor Interface • Disable • DME protocol • VTR protocol
GPI Interface • Disable • Enable
Switcher Interface • Disable • Enable
CLEAR WRK BUFF
POWER ON
TOP MENU BUTTON
EDITOR IF
GPI IF
SW'ER IF
PWR ON DEFINE
CLR WRK DEFINE

OPERATION menu

The following are some of the operations carried out in this menu.

Selecting the initializing mode for the working keyframe buffer – F1 (CLEAR WRK BUFF)

Pressing the CLR WORK BUFF button in the keyframe operation section initializes the working keyframe buffer. There are two options for the state to which the working keyframe buffer is cleared, selected by pressing F1 (CLEAR WRK BUFF) as follows.

Factory set: Clear to the factory default settings.

User define: Clear to the settings determined using F8 (CLR WRK DEFINE).

Selecting the power on mode – F2 (POWER ON)

There are three options for the initial state of the display when the system is powered on, selected by pressing F2 (POWER ON) as follows.

Factory set: Initialize to the factory default settings.

User define: Initialize to the settings determined using F7 (PWR ON DEFINE).

Selecting the effect of the top menu buttons – F3 (TOP MENU BUTTON)

There are two options for the effect of the buttons in the top menu selection section of the menu operation section, selected by pressing F3 (TOP MENU BUTTON) as follows.

Top menu: Display the top menu in the respective menu group.

Last menu: Display the last menu accessed in the respective menu group.

Enabling the editor interface – F4 (EDITOR IF)

To control the internal DME from an editor connected to the EDITOR connector on the rear panel of the processor, press F4 (EDITOR IF) to select "DME protocol" or "VTR protocol".

DME protocol: for control from a BVE-9100

VTR protocol: for control from a BVE-2000

Set the device constants for the intelligent device controller connected to the editor according to the protocol used, as shown in the following table.

DME protocol	CONST-1:	01 40 00 00 06 00 07 06
VTR protocol	CONST-1:	D0 02 00 96 03 03 02 81
	CONST-2:	0A 02 FF 00 00 0A FF

Enabling GPI input – F5 (GPI IF)

To activate the internal DME by means of trigger signals input from external equipment connected to the DME GPI connector on the rear panel of the processor, press F5 (GPI IF) to select "Enable".

For details of the trigger types and the operations which they cause, see the section "Setting Up the GPI – 704" (page 10-13).

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Enabling control from a switcher – F6 (SW'ER IF)

To control the internal DME from a switcher control panel connected to the SWITCHER PANEL connector on the rear panel of the processor, press F6 (SW'ER IF), to select "DME".

Setting up the state to be recalled at power on – F7 (PWR ON DEFINE)

Use the following procedure.

1. Set the system up with all the settings, including setup data, three-dimensional transformation parameters and effects, to the required initial state.
2. In the OPERATION menu, press F7(PWR ON DEFINE).

   This stores the state of the settings at the time the button is pressed.
   This state is recalled at power on, provided that the "Power On" item is set to "User Define".

Setting up the state to be recalled with the CLR WORK BUFF button – F8 (CLR WRK DEFINE)

Use the following procedure.

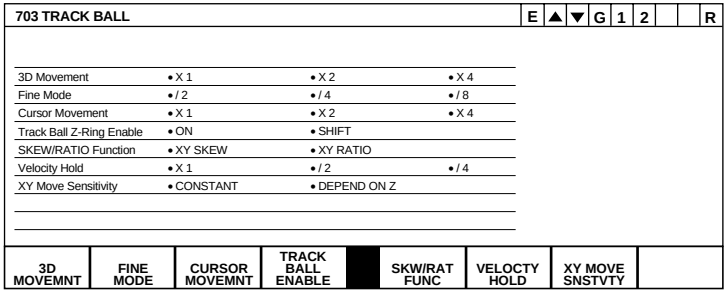
1. Set the system up with all the settings, including three-dimensional transformation parameters and effects, to the required state.
2. In the OPERATION menu, press F8 (CLR WRK DEFINE).

   This stores the state of the settings at the time the button is pressed.
   This state is recalled with the CLR WORK BUFF button, provided that the "Clear Work Buff" item is set to "User define".

Adjusting the Trackball and Z-Ring – 703

This menu adjusts various functions of the trackball and Z-ring.

With the first set of soft key indications shown in the SETUP & DIAG menu, press F3 (TRACK BALL) to display the TRACK BALL menu.


703 TRACK BALL
E ▲ ▼ G 1 2 R
3D Movement • X 1 • X 2 • X 4
Fine Mode • / 2 • / 4 • / 8
Cursor Movement • X 1 • X 2 • X 4
Track Ball Z-Ring Enable • ON • SHIFT
SKEW/RATIO Function • XY SKEW • XY RATIO
Velocity Hold • X 1 • / 2 • / 4
XY Move Sensitivity • CONSTANT • DEPEND ON Z
3D MOVEMNT
FINE MODE
CURSOR MOVEMNT
TRACK BALL ENABLE
SKW/RAT FUNC
VELOCTY HOLD
XY MOVE SNSTVTY

TRACK BALL menu

The following are some of the operations carried out in this menu.

Selecting the speed of movement – F1 (3D MOVEMNT)

There are three options for the speed of image movement in response to trackball or Z-ring operation, selected by pressing F1 (3D MOVEMNT) as follows.

×**1:** Standard speed
×**2:** Double speed
×**4:** Quadruple speed

Selecting the effect of the SEL/FINE button – F2 (FINE MODE)

There are three options for the degree of fineness of control provided by holding down the SEL/FINE button during a trackball or Z-ring operation, selected by pressing F2 (FINE MODE) as follows.

/2: 1/2 of movement when SEL/FINE button is not held down
/4: 1/4 of movement when SEL/FINE button is not held down
/8: 1/8 of movement when SEL/FINE button is not held down

Selecting the cursor response – F3 (CURSOR MOVEMNT)

There are three options for the speed of cursor movement in response to trackball operation, selected by pressing F3 (CURSOR MOVEMNT) as follows.

×1: Standard speed
×2: Double speed
×4: Quadruple speed

Selecting the operation of the trackball and Z-ring – F4 (TRACK BALL ENABLE)

ON: The trackball and Z-ring always operate.

SHIFT: The trackball and Z-ring operate only when the SHIFT button is held down.

Selecting the function of the ASP/SKEW/PERS button – F5 (SKW/RAT FUNC)

When the SRCE and ASP/SKEW/PERS buttons are lit, there are two options for the function of the trackball, selected by pressing F5 (SKW/RAT FUNC) as follows.

XY SKEW: The trackball inclines the image in the x- and y-directions.

XY RATIO: The trackball changes the aspect ratio by adjusting the image size in the x- and y-directions separately.

Note that whichever of these is selected, you can still use the Z-ring to change the aspect ratio.

Moreover, whichever of the two is selected, pressing the ASP/SKEW/PERS button while holding down the SHIFT button always activates the other function.

Selecting the speed of image movement produced by the VELO HOLD button – F6 (VELOCTY HOLD)

There are three options for the maintained speed of image movement produced by the VELO HOLD button, selected by pressing F6 (VELOCTY HOLD) as follows.

×1: The image continues moving at the detected speed (the speed before you removed your hand from the trackball or Z-ring)

/2: The image continues moving at 1/2 of the detected speed.

/4: The image continues moving at 1/4 of the detected speed.

Selecting the z-coordinate-dependent trackball response – F7 (XY MOVE SNSTVTY)

There are two options for the relation between trackball response and the position on the z-axis, selected by pressing F7 (XY MOVE SNSTVTY) as follows.

CONSTANT: The speed of image movement in response to the trackball does not depend on the position along the z-axis.

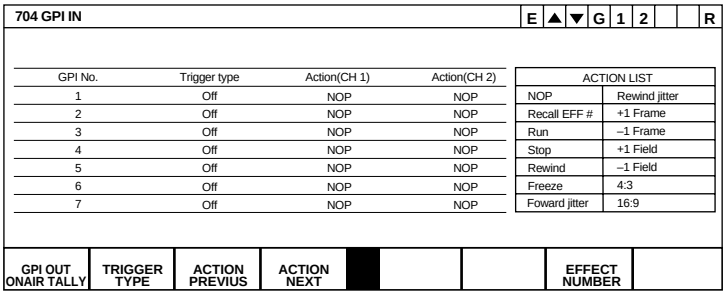
DEPEND ON Z: The speed of image movement in response to the trackball increases as the position recedes into the distance (i.e. as the z-coordinate increases).

This mode provides a lighter operating touch for movement in the x- and y-directions of an image positioned well into the screen (i.e. with a large z-coordinate).

Setting Up the GPI – 704

Use this menu to set up the processor to accept and be controlled by GPI outputs from a BVE-2000 or other editing control unit. To make these settings effective, set F5 (GPI IF) to “Enable” in the OPERATION menu *(see page 10-7)*.

With the first set of soft key indications shown in the SETUP & DIAG menu, press F4 (GPI) to display the GPI menu.



GPI menu

The following is a typical operation carried out in this menu.

Setting up the GPI inputs

This selects the trigger type and action to be carried out in response to each of the DME GPI input ports of selected channel(s).
Use the following procedure.

1 Use the control panel ⇧and ⇩buttons to select the number of the DME GPI port for which you wish to make the setting.

2 Press F2 (TRIGGER TYPE) to select the trigger type. Pressing F1 cycles through the following possibilities.
Rise edge: Positive pulse. A rising edge acts as the trigger. (⎍)
Fall edge: Negative pulse. A falling edge acts as the trigger. (⎏)
Flip flop: Flip-flop. Each switch in polarity of the signal acts as the trigger. (⨉)

(Continued)

High Active: When the GPI input is high level, switch to the operating mode specified as “ACTION”. Effective only when “ACTION” is “4:3” or “16:9”.
Low Active: When the GPI input is low level, switch to the operating mode specified as “ACTION”. Effective only when “ACTION” is “4:3” or “16:9”.
Off: No operation.

3 Press F3 (ACTION PREVIUS) or F4 (ACTION NEXT) to select the trigger action.

Pressing F4 (ACTION NEXT) cycles forward through the possibilities under the heading “ACTION LIST” on the right, and pressing F3 (ACTION PREVIUS) cycles through in the reverse sequence.
NOP: Ignore incoming GPI signals.
Recall EFF #: Recall a key frame effect.
Run: Execute a keyframe effect.
Stop: Stop a keyframe effect.
Rewind: Rewind a keyframe effect.
Freeze: Freeze the input signal to the DME.
Fwd jitter: Each time the GPI signal is input, move forward one frame, and jitter, that is, display fields 1 and 2 alternately.
Rewind jitter: Rewind keyframe effect, and jitter, that is, display fields 1 and 2 alternately.
+1 Frame: Move a stopped keyframe effect forward by one frame.
–1 Frame: Move a stopped keyframe effect back by one frame.
+1 Field: Move a stopped keyframe effect forward by one field.
–1 Field: Move a stopped keyframe effect back by one field.
4:3: Select a screen aspect ratio of 4:3
16:9: Select a screen aspect ratio of 16:9

4 If you selected “Recall EFF #” in step **3**, press F7 (EFFECT NUMBER), and enter the number of the effect from the numeric keypad.

5 Repeat steps **1** to **4** as necessary to carry out the settings for all of the input ports.

Note

Regardless of the selected channel, the “4:3” and “16:9” settings always apply to all channels.

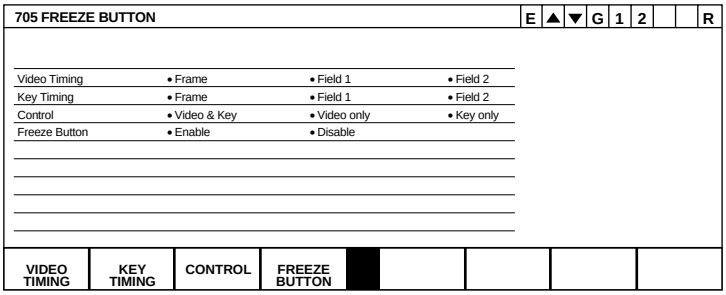
Outputting an on-air tally

To output ON AIR TALLY from GPI OUT, set F1 (GPI OUT ON AIR TALLY) to “ON”.

FREZE Button Settings – 705

This menu controls the function of the FREZE button on the control panel.

With the first set of soft key indications shown in the SETUP & DIAG menu, press F5 (FREEZE BUTTON) to display the FREEZE BUTTON menu.



FREEZE BUTTON menu

The following is a typical operation carried out in this menu.

Setting up the FREZE button function – F1 (VIDEO TIMING) to F3 (CONTROL)

Use the following procedure.

1 Press F3 (CONTROL), and select the signal or signals to which the freeze function applies.
Pressing F3 cycles through the following possibilities.
Video & key:both video and key input signals
Video only:video input signal
Key only:key input signal

2 Press F1 (VIDEO TIMING) to select the freeze timing for the video signal.
Pressing F1 cycles through the following possibilities.
Frame: freeze one frame.
Field 1: freeze field 1.
Field 2: freeze field 2.

3 Press F2 (KEY TIMING) to select the freeze timing for the key signal.
The settings are the same as in step **2**.

Enabling or disabling the FREZE button – F4 (FREEZE BUTTON)

To disable the FREZE button on the control panel, so that pressing it has no effect, press F4 (FREEZE BUTTON) to select “Disable”. To restore the effect of the FREZE button, press F4 (FREEZE BUTTON) to select “Enable”.

Screen Saver Setting – 706

Use the SCREEN SAVER menu to enable the screen saver function.

With the first set of soft key indications shown in the SETUP & DIAG menu, press F6 (SCREEN SAVER) to display the SCREEN SAVER menu.

SCREEN SAVER menu soft key indications

The following operations are carried out in this menu.

Enabling the screen saver function – F1 (SCREEN SAVER)

Use the following procedure.

1 Press F1 (SCREEN SAVER), turning it on.

2 Press F2 (TIME).

The legend “TIME =” appears in the numeric keypad area.

3 Using the numeric keypad, set the required activation time for the screen saver function (hours, minutes and seconds). (For example, to set 5 minutes 30 seconds, enter “5.30”. The minimum time you can set is 5 seconds.)

After this, if the set time elapsed with no operation, a screen saver display appears on the screen.

Escaping from the screen saver display

Press any button on the control panel or move the trackball or Z-ring.

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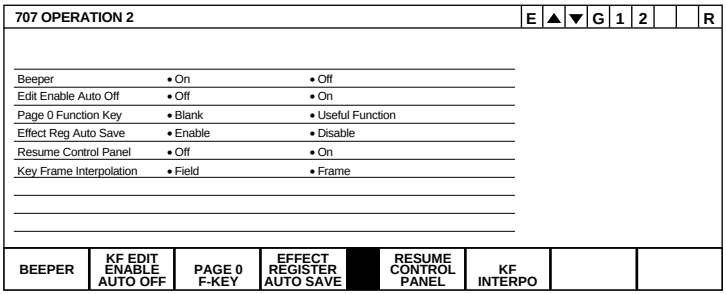
Settings Related to Operation 2 – 707

This menu controls settings for a beeper sound, and fast access to frequently used menus.

With the first set of soft key indications shown in the SETUP & DIAG menu, press F7 (OPERATION 2) to display the OPERATION 2 menu.


707 OPERATION 2
E ▲ ▼ G 1 2 R
Beeper • On • Off
Edit Enable Auto Off • Off • On
Page 0 Function Key • Blank • Useful Function
Effect Reg Auto Save • Enable • Disable
Resume Control Panel • Off • On
Key Frame Interpolation • Field • Frame
BEEPER
KF EDIT ENABLE AUTO OFF
PAGE 0 F-KEY
EFFECT REGISTER AUTO SAVE
RESUME CONTROL PANEL
KF INTERPO

OPERATION 2 menu

The following are some of the operations carried out in this menu.

Toggling the beeper on and off – F1 (BEEPER)

Press F1 (BEEPER) to toggle on and off the beeper which sounds when an error message appears.

Turning the KF EDIT ENABLE button off automatically when the effect register is called – F2 (KF EDIT ENABLE AUTO OFF)

Press F2 (KF EDIT ENABLE AUTO OFF), turning it on.
In this state, the KF EDIT ENABLE button in the key frame operation section is automatically turned off whenever the key frame effect register is called. This prevents inadvertent overwriting of the register.

Making it possible to access frequently used menus directly from the “TOP MENU LIST” screen – F3 (PAGE 0 F-KEY)

Pressing F3 (PAGE 0 F-KEY) to select “Useful Function” causes the titles of the following eight menus to be displayed in the function key indications for the “TOP MENU LIST” screen *(see page 4-8)*.

In the “TOP MENU LIST” screen, selecting a soft key allows a direct call to the corresponding menu.

Disabling the effect register auto save function – F4 (EFFECT REGISTER AUTO SAVE)

Enable or disable the auto save function, which automatically saves the current editing contents of the key frame effect register whenever the register is called.

Enable: Use the auto save function.

Disable: Do not use the auto save function.

When set to Disable, a manual operation is required to save the effect that you are currently editing before calling the key frame effect register.

Toggling the power-on resume mode – F5 (RESUME CONTROL PANEL)

Set F5 (RESUME CONTROL PANEL) to On to use the resume function. When the system is powered on, the resume function restores it to the state it was in immediately before being powered off.

Toggling the internal key frame processing mode – F6 (KF INTERPOLATE)

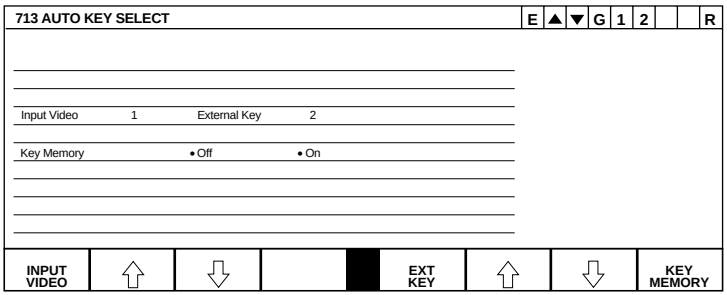
Select whether internal processing of key frames should be carried out on a field or frame basis.

FIELD: Perform processing for each field.

FRAME: Perform processing for the first field only, and use the processing results of the first field for the second field.

Automatic Key Selection Settings – 713

These settings assign the key signal to be selected automatically when a particular video signal is selected.
After making this assignment, the automatic selection will be carried out when F6 (AUTO KEY SELECT) in the IN/OUT SELECT menu *(see page 6-4)* is set to “ON”.
With the second set of soft key indications shown in the SETUP & DIAG menu, press F3 (AUTO KEY SELECT) to display the AUTO KEY SELECT menu.



AUTO KEY SELECT menu

The following operation is carried out in this menu.

Assigning the key signal to a video signal

Use the following procedure.

1 Use one of the following methods to display the input button number for the video signal for which the setting is to be made at the “Input Video” item.
- Press F2 (⇧) or F3 (⇩) to increment or decrement the number.
- Press F1 (INPUT VIDEO), then enter the button number using the numeric keypad.

2 Use one of the following methods to display the input button number for the key signal to be assigned to the video signal selected in step **1**, at the “External Key” item.
- Press F6 (⇧) or F7 (⇩) to increment or decrement the number.
- Press F5 (EXTERN KEY), then enter the button number using the numeric keypad.

This assigns the key signal.

Storing the key settings for each input button (key memory function)

Press F8 (KEY MEMORY), turning the setting for “Key Memory” to “On”.

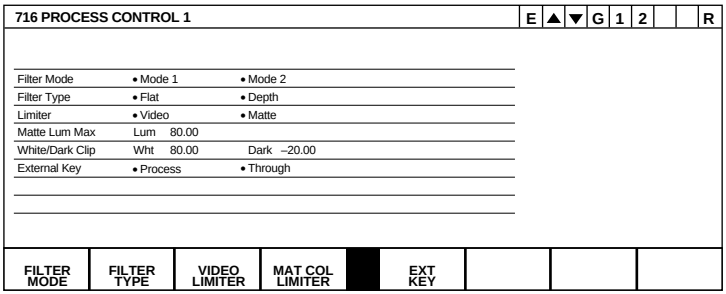
Using the key memory function, it is possible to store the following mode and parameter settings for each input button.

- The key source (Internal/External/Luminance) *(page 6-5)*
- The Clip value and Gain value (External Key and Luminance Key) *(page 6-5)*
- The key signal inversion setting (Off/On) *(page 6-6)*
- The clean key setting (Off/On) *(page 5-12)*
- The crop position *(page 5-16)*

Signal Processing Settings – 716

This menu selects settings for signal processing within the internal DME.

With the second set of soft key indications shown in the SETUP & DIAG menu, press F6 (PROCESS CTRL 1) to display the PROCESS CONTROL 1 menu.


716 PROCESS CONTROL 1
E ▲ ▼ G 1 2 R
Filter Mode • Mode 1 • Mode 2
Filter Type • Flat • Depth
Limiter • Video • Matte
Matte Lum Max Lum 80.00
White/Dark Clip Wht 80.00 Dark –20.00
External Key • Process • Through
FILTER MODE
FILTER TYPE
VIDEO LIMITER
MAT COL LIMITER
EXT KEY

PROCESS CONTROL 1 menu

The following are some of the operations carried out in this menu.

Selecting the filter type – F1 (FILTER MODE)

There are two sorts of filter processing which can be applied to the video signal: press F1 (FILTER MODE) to toggle between them.

Mode 1: the filter corrections are such as to make the picture clearly visible even when compressed.

Mode 2: the filter corrections are such as to reduce aliasing problems when the picture is enlarged or compressed.

Selecting the filter type – F2 (FILTER TYPE)

Flat: Applies a uniform filter.

Depth: Controls the strength of the filter separately for each pixel on the basis of the depth information.

Setting the video signal color limiter – F3 (VIDEO LIMITER)

Press F3 (VIDEO LIMITER) to switch on the video signal color limiter, which prevents illegal colors from being generated.

Setting the matte signal color limiter – F4 (MAT COL LIMITER)

Press F4 (MAT COL LIMITER) to switch on the matte signal color limiter, which prevents illegal colors from being generated.

Setting a maximum luminance limit for the matte signals

To set a maximum luminance limit for the matte signals, select the "Matte Lum Max" item, then adjust the left knob ("Lum"). (70 to 130%)

Setting minimum and maximum luminance limits for the video signals

Use the following procedure to set minimum and maximum luminance limits for the video signals.

1 Select the "White/Dark Clip" item.

2 To set the maximum limit, adjust the left knob ("Wht"). (70 to 130%)

3 To set the minimum limit, adjust the right knob ("Dark"). (–40 to 0%)

Outputting the external key signal without processing – F5 (EXTERNAL KEY)

To output the external key signal without subjecting it to level processing in an internal key generator for example, press F5 (EXTERNAL KEY), to select "Through".

Note

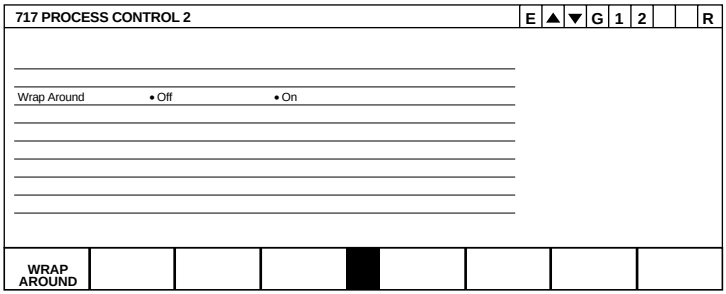
When you select "Through", the following functions are not available.

- Recursive
- Drop shadow
- Key clip
- Key gain

Signal Processing Settings 2 – 717

This menu selects settings for signal processing within the internal DME.

With the second set of soft key indications shown in the SETUP & DIAG menu, press F7 (PROCESS CTRL 2) to display the PROCESS CONTROL 2 menu.



PROCESS CONTROL 2 menu

The following are some of the operations carried out in this menu.

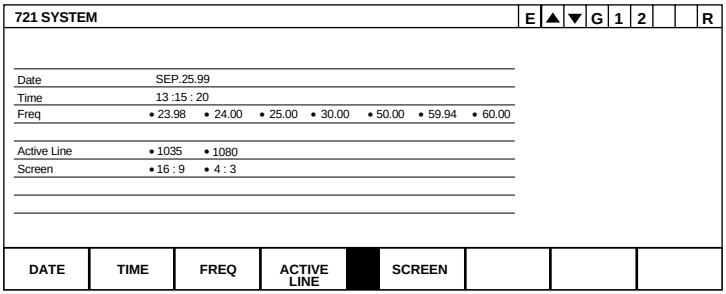
Enabling or disabling virtual images – F1 (WRAP AROUND)

If you apply an extreme perspective effect, it is possible for parts of the image to be behind the notional viewpoint: these are called virtual images. Press F1 (WRAP AROUND) to toggle on and off the display of virtual images.

System Settings – 721

This menu makes system settings such as the system clock and operating mode.

With the third set of soft key indications shown in the SETUP & DIAG menu, press F1 (SYSTEM) to display the SYSTEM menu.



SYSTEM menu

The following are some of the operations carried out in this menu.

Setting the date – F1 (DATE)

To set the date, use the following procedure.

1 Press F1 (DATE).

The current date setting appears in the numeric keypad area *(see page 4-4)*.

2 Using the numeric keypad, enter the date in the American format as mm.dd.yy.
For example, to set the date to September 25, 1999, enter “9.25.99”.

3 Press the ENTER button in the numeric keypad section.

This confirms the date setting on the menu screen.

Setting the time – F2 (TIME)

To set the time, use the following procedure.

1 Press F2 (TIME).

The current time setting appears in the numeric keypad area.

2 Using the numeric keypad, enter the time in the format hh.mm.ss, using the 24-hour clock.
For example, to set the time to 13:15 and 20 seconds, enter 13.15.20.

3 Press the ENTER button in the numeric keypad section.

This confirms the time setting on the menu screen.

Selecting the frequency mode – F3 (FREQ)

Press F3 (FREQ) to select any of the 23.98Hz, 24.00Hz, 25.00Hz, 30.00Hz, 50.00Hz, 59.94 Hz, or 60.00 Hz mode.

Selecting 1035 lines or 1080 lines – F4 (ACTIVE LINE)

Press F5 (ACTIVE LINE) to select 1035 or 1080 active scan lines.

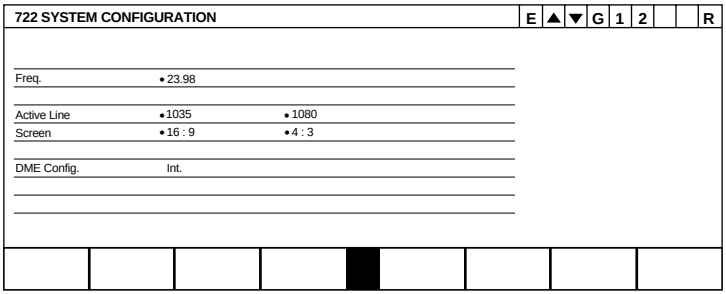
Selecting the screen aspect ratio – F5 (SCREEN)

Press F4 (SCREEN) to select a 16:9 or 4:3 screen aspect ratio.

System Configuration Screen – 722

This screen displays the current status of the system.

With the third set of soft key indications shown in the SETUP & DIAG menu, press F2 (SYSTEM CONFIG) to display the SYSTEM CONFIGURATION screen.



SYSTEM CONFIGURATION menu

This screen displays the current settings of the frequency mode, the active scan lines, and the screen aspect ratio for the internal DME.
The function keys have no effect.

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Displaying the Software Version – 723

This displays the software versions for the processor, the control panel, and the currently installed option boards.

With the third set of soft key indications shown in the SETUP & DIAG menu, press F3 (VERSION) to display the VERSION menu, which provides the software version display.

Software Installation

This section describes the procedure for installing of the SYSTEM DISK 3 and SYSTEM DISK 4 included in the HZS-7040 operation software.
When a new version of the software is issued follow the following instructions to install the new version.

Operation Software

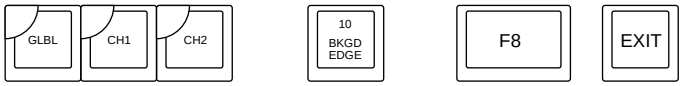
Operation software for the internal DME is supplied on two floppy disks, that is, SYSTEM DISK 3 (for the processor) and SYSTEM DISK 4 (for the control panel).

Installing the Software in the Control Panel

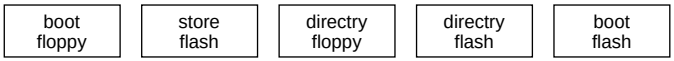
To install the operation software for the control panel, use the following procedure.

1 Insert the floppy disk labeled “SYSTEM DISK 4” in the drive.

2 Press the following six buttons on the control panel simultaneously to reset the CPU.



The display changes to the following soft key indications.



Soft key indications for installing the software for the control panel

3 Press F2 (store flash).

The installation begins. The process takes approximately ten minutes, during which no other operations are possible.
If the installation completes normally, a message “store flash ROM complete” appears.

4 Press F5 (boot flash).

The system starts, and the initial screen appears on the menu monitor.

Installing the Software in the Processor – 724

Installing the operation software in the processor

Notes

- If there are snapshots or effects data stored in the processor registers, this data will be destroyed by installing the software. Before beginning the installation operation, save the contents of registers to floppy disk.

  For details of saving to floppy disk, see the section "Saving register contents – SAVE" (page 8-15).

- If using option boards, complete the installation of the option boards before installing the software. If you add option boards after installing the software, it is necessary to install the software again.

To install the operation software for the processor, use the following procedure.

1 Insert the floppy disk labeled "SYSTEM DISK 3" in the drive.

2 With the third set of soft key indications shown in the SETUP & DIAG menu, press F4 (INSTALL) to display the INSTALL menu.

INSTALL		MANUAL INSTALL	RETRY		OK	CANCEL		ON/OFF

INSTALL menu soft key indications

3 Press F1 (INSTALL).

4 To confirm the installation, press F5 (OK); to abort the installation, press F6 (CANCEL).

The installation begins. The process takes approximately ten minutes, during which no other operations are possible.
If the installation completes normally, a message "Finished" appears.

Selecting software before installing – F3 (MANUAL INSTALL)

Use the following procedure.

1 Use ⇧or ⇩button to select the required software and then press F8 (ON/OFF).

2 Press F3 (MANUAL INSTALL).

The installation begins.
Press F4 (RETRY) to restart when an error occurs while the installation is executed.

Setting up the state to be recalled at power on after installing software

After installing a new software version in the processor, the previous setup data is preserved. Use the following procedure to change the settings to be recalled at power on after upgrading.

1 In the OPERATION menu (menu page 702), press F2 (POWER ON), to select “User define”.

For details of the OPERATION menu, see page 10-7.

2 Momentarily power off the processor and power it on again, to restart the system.

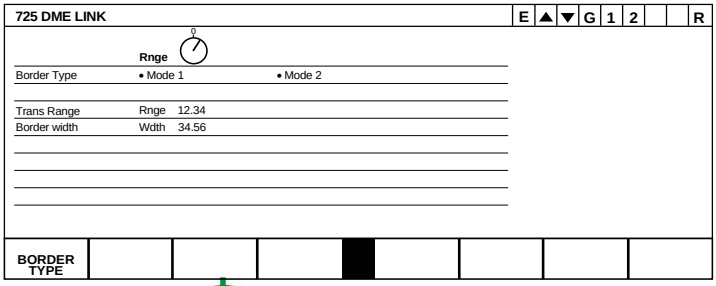
3 Make all the setting changes and additional settings to the required initial state.

4 In the OPERATION menu, press F7 (PWR ON DEFINE).

Settings for the DME LINK™ Function – 725

This menu provides settings related to the control of a transition and the width of the border of a DME wipe pattern with the fader lever when using the DME LINK™ (DME wipe) function on a digital video switcher connected to the DME.

With the third set of soft key indications shown in the SETUP & DIAG menu, press F5 (DME LINK) to display the DME LINK menu.



DME LINK menu

Selecting the transition and border width control mode – F1 (BORDER TYPE)

Press F1 (BORDER TYPE) to select the mode.

Mode 1: Regardless of the position of the fader lever, it controls both the transition and border width.

Mode 2: At either end of the travel of the fader lever, it controls only the border width, and in the center portion of its travel it controls only the transition.

When you select “Mode 2”, you can select the portion of the travel of the fader lever which controls only the transition, by the following settings.

Align the cursor on “Trans Range”, and turn the left knob (“Rnge”) to adjust the parameter. (50.00 to 100.00)

For example, setting a value of 80.00 means that 10% of the travel from either end controls only the border width, and the center 80% of the travel controls only the transition.

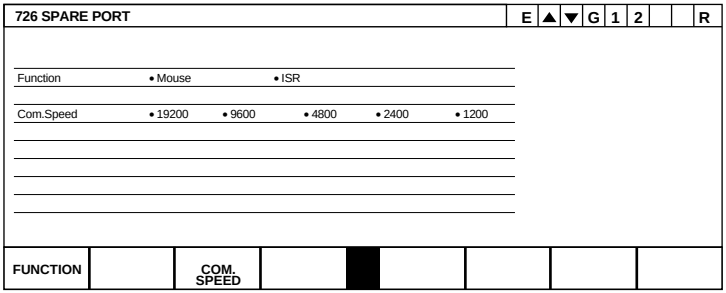
Setting the maximum border width

To set the maximum width of the border of a DME wipe pattern, align the cursor on “Border Width”, and turn the left knob (“Wdth”) to adjust the parameter. (0.00 to 100.00)

Spare Port Settings – 726

This menu selects the use for the RS-232C connector on the control panel.

With the third set of soft key indications shown in the SETUP & DIAG menu, press F6 (SPARE PORT) to display the SPARE PORT menu.



SPARE PORT menu

Selecting the use of the RS-232C connector – F1 (FUNCTION)

Use the following procedure.

1 Press F1 (FUNCTION) to select the function.
Mouse: an RS-232C interface mouse (PCY-330 or similar)
ISR: Connection to an ISR (Interactive Status Reporting) system. There are three commands available:
- *IDN?
- *STATUS?
- *MSG?

2 If you selected ISR, press F3 (COM. SPEED) to select the data transmission rate.

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